



Manual of Freshwater Assessment for South Africa:

Dragonfly Biotic Index

Michael J. Samways & John P. Simaika

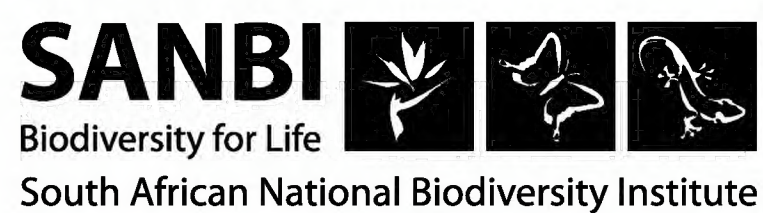
SURICATA 2



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Michael J. Samways & John P. Simaika



Pretoria

2016

SURICATA

Suricata is the genus name of the suricate (*meerkat*), which is near-endemic to the arid western parts of southern Africa (occurring in Namibia, South Africa and Botswana; and just entering into a very small area in the extreme south of Angola). Behaviourally, suricates are socially inclusive and innately inquisitive, symbolising the commitment of the South African National Biodiversity Institute (SANBI) to include all biodiversity and serve all of Africa, and the scientific curiosity that precedes and drives research and publication of research results. Sister journal to SANBI's *Strelitzia*, *Suricata* is a peer-reviewed journal and publishes original and applied research such as monographs, revisions, checklists, Red Lists, Atlases and Faunas of any taxa belonging to Regnum Animalia (the Animal Kingdom).

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One of the world's rarest damselflies, the Amatola Malachite (*Chlorolestes apricans*) from the Eastern Cape. It is Red Listed as Endangered, and has the maximum Dragonfly Biotic Index score of 9. (Photograph: Michael J. Samways).

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PREFACE

Overall, freshwater ecosystems are the most threatened ecosystem type in the world. The scarce South African freshwaters are threatened by alien organisms, high volumes of water abstraction, and pollution. Yet some South African freshwaters are being restored to their former condition. It is important to monitor these systems and note whether they are declining or improving. One way to do this is to use

the Dragonfly Biotic Index, which is based on dragonfly biogeography, their sensitivity to change, and the degree to which they are threatened. This index is sensitive and robust and is suitable for assessing and monitoring freshwaters across the country. This manual explains how to use and apply the Dragonfly Biotic Index, while also providing guidelines for species identification.





INTRODUCTION

'Dragonflies' is a broad term that covers the true and familiar dragonflies as well as the smaller and usually more slender and delicate damselflies. As a group, they are well-known insects that grace virtually every freshwater body, whether running or still water, throughout South Africa. To date, 162 species have been recorded from the country. This figure is unlikely to be final, as occasional new records come from species crossing the northern borders. Indeed, one such species, the Great Hooktail (*Paragomphus magnus*), was only discovered in South Africa in late 2012. Also, there is still a chance that species completely new to science will be discovered, which may only be known from particular, localised areas.

Species with restricted distribution ranges are known as endemics, with about a fifth of the South African species falling into this category, i.e. they are restricted to South Africa and mostly to only a very small part of the country. These endemic species are important, often because they need conservation protection in their own right, as they are vulnerable to human impact. Often too, endemic species are also highly sensitive indicators of water quality. This is an important feature as fresh water is a scarce and diminishing resource in South Africa, and one that constantly needs conservation management for future human health and security.

Overall, dragonflies are good indicators of freshwater quality and conservation. This presents a major opportunity for using them to measure the extent to which a freshwater body is deteriorating, or, where conservation action has been taken, to assess how well the freshwater body is returning to its original or reference condition. Dragonflies are particularly useful for the task of assessment and monitoring as there is a sufficient number of species with different, yet specific habitat requirements to provide for a range of descriptive characteristics for any freshwater habitat, type and quality. In fact, it is the change in the species assemblages that enables us to measure the state of the water body. The emphasis here really is on species. The reason for this emphasis is that at this high-resolution taxonomic level there is much more sensitivity than is the case when using higher taxonomic levels, such as genus, family or order. The highest sensitivity to change in aquatic environments is at the species level.

There is another reason for using dragonflies in freshwater assessment: they are relatively easy to identify in the field and the only equipment needed

is a pair of close-focus binoculars, a net for catching the occasional specimen for verification, and a hand lens to study their important morphological features. With practice at recognition, a freshwater body can be assessed in a relatively short period of time – without entering the water. The assessment can take place from the bank or the margin. There are other taxa, such as mayflies, caddisflies and stoneflies, which can also be used for freshwater assessment. However, they hold much bigger challenges of recognition than is the case with dragonflies, and often the larvae have to be collected and carefully scrutinised, which is not always practical for many busy freshwater health practitioners.

This guide is a handbook for freshwater managers who require an assessment of a water body, either at one moment in time, or over time as conditions change. This may, for example, be for assessing river condition as alien invasive plants are removed from the river bank. This guide is about using adult dragonflies in freshwater health assessments. The recommendations given here have been developed over many years of rigorous research.

In summary, this is a handbook for the assessment of freshwater bodies using a visible group of insects to apply a practical, straightforward method. Furthermore, the undertaking of this type of assessment is not overly arduous, as, in principle, it is no different from going birdwatching. Similarly, it requires some initial practice at recognition and identification, but competency soon develops, making it a very easy and effective means of assessing freshwater quality. This handbook introduces the procedure to follow and notes on interpreting the results for optimal conservation management.

The use of adult dragonflies versus larvae, exuviae and water chemistry

The problem with using larvae or the cast skin of the emerging adults (known as the exuviae) is that it is very difficult to sample all the larvae or exuviae, even in any one particular area. All species regularly inhabiting an area have to be sampled to obtain a comprehensive assessment of a water body, and with larvae and exuviae, normally only a subset can be found at any one location. This is especially so

for rare species, even large ones, and for species that inhabit plant roots or rock crevices.

The collected larvae must then be identified. This is only possible for the last instar larva of each species, and then only for the minority of the species recorded in South Africa. Not only is sampling larvae much more arduous than observing adults, but there is also no guarantee that the adult will emerge. Furthermore, sampling larvae is much more dangerous, whether because of slippery or hazardous water conditions, or because of dangerous animals, especially crocodiles, and pathogens such as bilharzia.

Other critics have suggested using exuviae for assessments. The problem is not only that of recognition, but also the matter of finding them. Exuviae are typically brown and well-camouflaged, and often difficult to sample among the tangle of waterside vegetation. Also their apparency (the period during which they can actually be found) is very low, as they appear at particular times of the year and soon disappear with the impact of rain and changing flow regimes, among other disturbances.

So why use dragonflies when one could simply measure the physical and chemical conditions of the water, or assess the water body based on its plant communities? The measurement of water conditions at any one time does not tell us anything about what may have happened in the past. By recording and analysing the organisms in the water, it gives us a 'final outcome' or 'bottom line' of what conditions were like in the immediate past, and how suitable they were for the organisms in question over time. In the case of dragonflies, they would have been living as larvae in the water for many weeks, if not months, and their survival and emergence means that conditions were suitable for them throughout their developmental period. This is where we need to emphasise again the advantage of using dragonfly species, rather than higher taxa in general which serve only as crude environmental indicators. This means that by evaluating the range of dragonfly species present, we have a finely tuned system of assessment.

Critics may argue that the adult dragonflies may not have emerged from the water body being studied, but from elsewhere. However, there are two points of reassurance here: firstly, most mature individuals stay close to their natal or preferred water body type, and secondly, the adults are still sensitive to the water conditions, and will not linger where these conditions are not suitable.

Having said the above, we nevertheless recommend collecting and recording (with accurate spatial and temporal data) larvae and exuviae obtained at assessment sites so they can be used, if necessary, to supplement the data on adults.

Some biogeographical considerations

The 162 species of dragonflies (including damselflies) that have been recorded from South Africa must be seen in the context of regional climate dynamics, as well as levels of threat facing these insects. Depending on levels of rainfall and patterns of floods and drought, certain species cross the northern national borders, sometimes in great numbers. They may or may not establish as breeding populations. Their populations may then increase when there is plenty of appropriate aquatic habitat available. However, when the cyclical climate changes again, these species may shift their distributions and biogeographically retreat to more suitable core habitats. This was the case with the Opal Slim (*Aciagrion dondoense*) which had not been seen in South Africa prior to the year 2000, and then with the massive, area-wide floods in Mozambique and northeastern KwaZulu-Natal, it appeared in great numbers in the iSimangaliso Wetland Park. Then, when dry conditions set in again in the middle of the first decade of the 21st century, it completely disappeared from the area.

Geographical range shifts can happen over international and national borders. For example, during wet years on the KwaZulu-Natal seaboard, the Robust Skimmer (*Orthetrum robustum*) may be widespread and abundant, but in dry years it retreats to perennial water bodies such as Lake Bhangazi North.

Further south, along the Cape coast, the situation is very different. Species occurring here have to either adapt or die. Over many millions of years, this has led to substantial speciation with many endemic species in the area, some now known to have become distinct species as far back as 60 million years ago. Even among the more widespread species, many are represented by Cape forms which differ from their conspecifics further north. With further DNA work, it is possible that some may turn out to be separate at the species level.

Events of relatively sudden climatic change have happened throughout the millennia. The presence of some species would suggest that wet conditions were more widespread in the past than they are today. With the Karoo drying out, only isolated pockets of suitable dragonfly habitat are left, such as streams at the higher elevations of the Mountain Zebra National Park. This again reinforces the dynamic nature of populations of these insects, with isolation events potentially leading to speciation in the long term. Indeed, many areas of South Africa are still poorly explored, with the strong possibility of new species awaiting discovery in unexplored areas, especially in mountainous regions.

Recognition of these ancient and modern climatic events has an important bearing on how we manage conservation practices in South Africa. Because some species are highly localised and endemic to a small area, they have a higher risk of becoming extinct through modern human impacts. A narrow-range endemic is arguably 'pre-adapted' to living in a small area, but should that area be subject to high human impact, it could have a severe impact on future populations of the species. In contrast, if a narrow-range endemic species occurs in a well-conserved area its future may be fairly well-assured, albeit in a relatively confined area. We see this among the Cape endemics, some of which are highly threatened, while others are thriving within certain well-managed protected areas.

Further north, the situation can be considerably different, with some endemics of the Little Berg and Highveld actually benefitting from human activity such as the construction of reservoirs for farm irrigation or trout fishing. In the savanna and coastal areas there are species for which conservation action has little meaning, as they come and go depending on favourable habitat. Species occurring in forests are of great national interest – although they are widespread in most parts of Africa, they reach the southernmost extreme of their geographical distribution. Due to the marginal nature of their distribution, they are inevitably sensitive to changes in the quality of their habitat.

Dragonfly assessments in context

With such a wide range of sensitivities among South African dragonflies to regional and local events that affect their habitats, and in view of the concern over water quality and quantity in the country, they have become focal organisms for measuring the quality of water bodies, whether they are declining, or improving. This has opened up an enormous opportunity for studying them in great depth as bio-indicators of water quality, whether still or running water. Indeed, research on this topic in South Africa has become internationally significant, as it can be linked to development of sustainable agro-forestry landscapes as a means of future-proofing the production of food and fibre. The timber industry has led the way forward with the development of large-scale ecological networks, where large corridors and nodes of remnant natural habitat are left intact between plantation forestry areas. This involves recognition of the importance of hydrological processes to enable rainfall catchment to function as it would naturally before the advent of forestry. Part of this process involves the removal of invasive alien trees, the biggest threat to South African aquatic biodiversity. The removal of these aliens, when done correctly and thoroughly, can lead to substantial res-

toration of streams, rivers and riparian zones. Dragonflies have played a major role in indicating the effectivity of this type of restoration.

Dragonflies and their conservation value are not just important for specialist scientists, but they also have great resonance with the public at large. In Japan and Europe they are major conservation subjects in their own right and they are becoming so also in South Africa. This means that there is an opportunity for all of us, from research scientist to citizen scientist, to become engaged in putting dragonflies on the map of conservation directives for the future.

Dragonfly biology

The familiar dragonfly seen on the wing is the adult. Usually the males are seen first as they are usually more brightly coloured than females and they live a more expansive lifestyle, often defending territory against rival males. The females are generally more cryptically coloured and live among the vegetation associated with the preferred habitat. There are some exceptions, e.g. Upland Sprite (*Pseudagrion spersatum*) and Palmiet Sprite (*P. furcigerum*) females are brightly coloured and as conspicuous as males.

Mating in some species is brief and rarely observed, but in many other species mating is prolonged with the male and female attached to each other. The male may clasp the female in her head region with the tip of his abdomen and they then fly *in tandem*. At other times, the male and female remain in the mating position, forming a so-called 'wheel' in copulation. It is a finely-tuned adaptation with them still able to fly remarkably well together in this position.

Eggs are laid either into the stems or branches of vegetation, or are scattered on the water surface depending on the specific species' adaptation. In some species, such as the Malachites and Spreadwings, the eggs are laid in lichens on the side of boulders in the water, in grass stems, or in twigs or reeds overhanging the water. In others, such as the Sprites and the Hawkers, they are laid in water weed, lilies or even dead wood under the water surface. The Skimmers, on the other hand, cast their eggs across the water surface, hence their name.

The eggs hatch into larvae that develop through several stages, or instars, before they finally leave the water to become adults. All larvae are predatory on a whole range of smaller organisms. All larvae are aquatic and, depending on the species, inhabit shallow pools, hollows in rocks, marshes, pans, streams, rivers, and in recent times, artificial water bodies, especially dams. Larvae of different species live in the mud at the bottom, under submerged logs or rocks, in sand, among tangles of submerged roots, but most species prefer to live among water weed.

When the larvae reach a certain level of development, known as the last instar, they leave the water. This usually happens before dawn, when it is safer to emerge from the water under cover of darkness. The larvae crawl onto reed or grass stems, rocks, or sand bank, depending on species, and remain motionless. The backs of the larvae split open and the adult dragonflies emerge. At first, their wings are soft and crumpled, but haemolymph is immediately pumped into the wing veins so that the wings open into their normal, fully open condition. The wings harden and become fixed for the rest of their lives. The dragonflies then fly off, leaving the cast skin, or exuvia, behind on the substrate.

The young adults are usually dull and the males do not yet have their final mature and often bright colours. At this time the young adults, known as teneral, leave the water's edge and move into neighbouring vegetation. Some species and individuals

may move a considerable distance while in the process of maturation. A teneral Silhouette Dropwing (*Trithemis hectate*) was once found over 20 km from the nearest water body. This is unusual, with most individuals moving only a few tens or hundreds of metres into the surrounding vegetation. After a few days, these individuals start to take on a mature adult appearance and the males usually return to the water or at least its vicinity, depending on species. The females also return, but generally remain more hidden from view, except to mate and lay eggs.

Ecoregions and their significance for dragonflies

South Africa consists of various ecoregions, or regions of floristically similar vegetation, a state which is driven by the particular local climatic conditions,

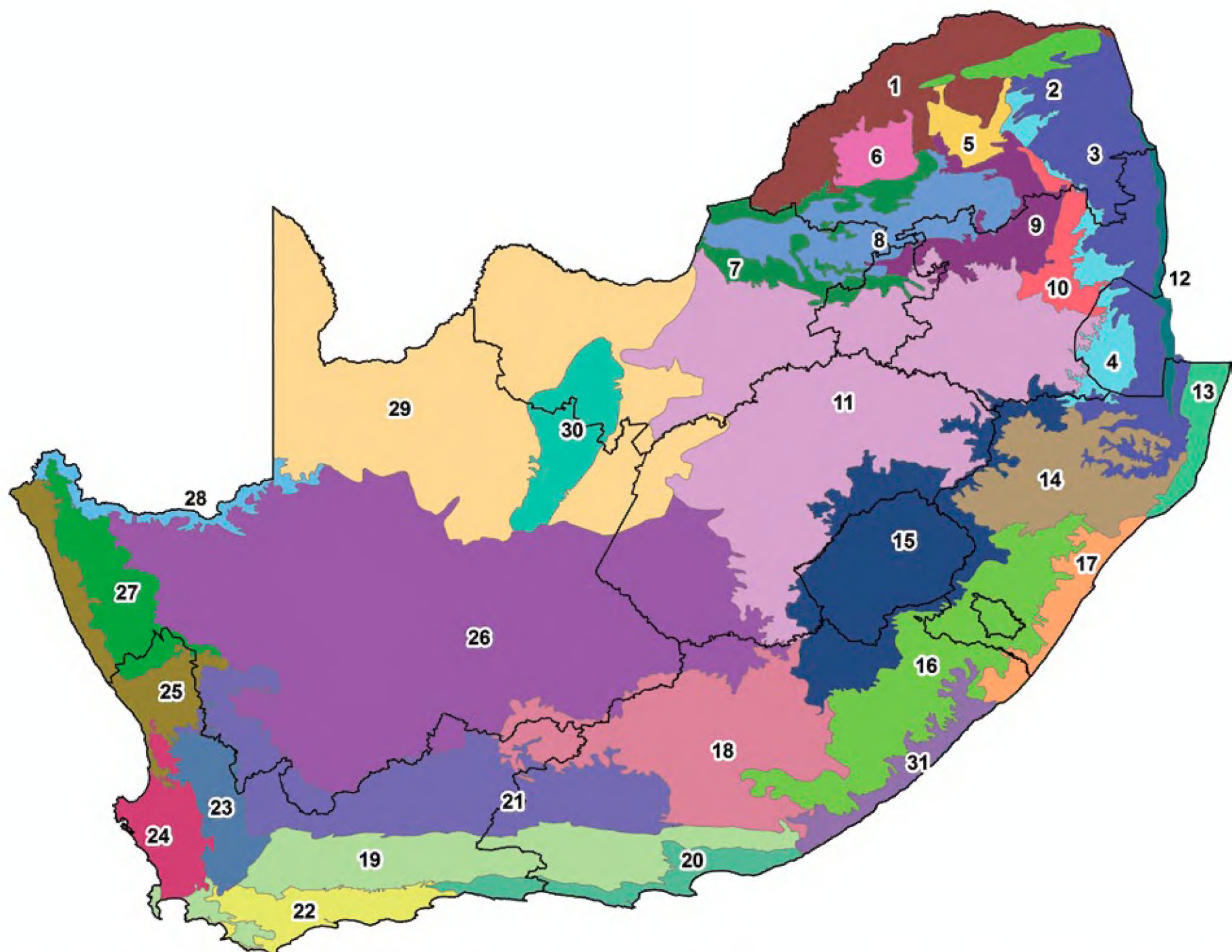


Figure 1.—The ecoregions of South Africa. 1 = Limpopo Plain, 2 = Soutpansberg, 3 = Lowveld, 4 = Northeastern Highlands, 5 = Northern Plateau, 6 = Waterberg, 7 = Western Bankenveld, 8 = Bushveld Basin, 9 = Eastern Bankenveld, 10 = Northern Escarpment Mountains, 11 = Highveld, 12 = Lebombo Uplands, 13 = KwaZulu-Natal Coastal Plain, 14 = Northeastern Uplands, 15 = Eastern Escarpment Mountains, 16 = Southeastern Uplands, 17 = Northeastern Coastal Belt, 18 = Drought Corridor, 19 = Southern Folded Mountains, 20 = Southeastern Coastal Belt, 21 = Great Karoo, 22 = Southern Coastal Belt, 23 = Western Folded Mountains, 24 = Southwestern Coastal Belt, 25 = Western Coastal Belt, 26 = Nama-Karoo, 27 = Namaqua Highlands, 28 = Orange River Gorge, 29 = Southern Kalahari, 30 = Ghaap Plateau, 31 = Eastern Coastal Belt. Black lines represent provincial boundaries.

Ecoregions according to Kleynhans et al. 2005. Copyright: Department of Water Affairs and Forestry, South Africa.

topography and other physical influences, including historical ones. Historical influences have had an effect not just on the types of species present, but also on their form, which is important for dragonflies. For example, vegetation types composed mainly of trees will have a different set of dragonfly species than low-growing plant communities.

South Africa has been divided into 31 ecoregions (Figure 1) and these are useful pointers for determining which dragonflies are likely to be found in any particular area. This may seem odd, as these regions are based on terrestrial rather than aquatic ecoregions. The reason for this is that the aquatic ecoregions cover whole catchments, covering all reaches of the river, from the feeder streams to the meandering lower reaches, and are thus too broad a classification. The terrestrial ecoregions, in contrast, are descriptively more detailed, especially with respect to topography and historical factors that have led to the current plant diversity patterns. This largely corresponds to what we find in the dragonflies.

The ecoregions into which each dragonfly species has been recorded to date are given in Table 1. These records serve only as a guide, but the information is valuable. Knowing in which ecoregions a particular species has been found helps determine the likelihood of finding them in water bodies being assessed, whether running or still.

Threats to South African dragonflies

The South African dragonfly fauna faces some severe threats, especially the many national or local endemic species which live in mountain streams and rivers. These streams face multiple threats; the most important and direct threat is invasive alien trees along their banks. Other threats include invasive alien fish (especially trout), over-abstraction of water for irrigation, cattle trampling of banks and siltation of water, and washing powder input into the water in some places. Sometimes multiple threats coincide. For example, at some localities in the Eastern Cape the rare and highly threatened *Amatola Malachite* (*Chlorolestes apricans*) is directly impacted by alien trees shading out its habitat, which attract cattle because of the shade that the trees provide. In turn, the cattle trample the banks and muddy the water. Trout then have a further, albeit minor impact, as probably does washing powder input.

Plantation trees (typically pine and eucalyptus trees) also impact on stream and river dragonfly populations when planted close to the water's edge, especially where the trees' drip zones (furthest reaches of their canopies) extend over the open water. Fortunately, responsible forestry companies with Forest

Stewardship Council certification are keeping trees away from water courses. This approach maintains the natural hydrological processes and conserves riparian biodiversity. These water courses often form part of large-scale ecological networks, which are extensive areas of natural landscape that are left between plantation blocks to optimise production without compromising biodiversity conservation and ecosystem processes.

Red List status of South African dragonflies

The IUCN Red List of Threatened Species is the most comprehensive and scientific list of the conservation status of species as captured on the databases of the International Union for Conservation of Nature (IUCN). The IUCN Red List, or simply Red List, as it is generally known, lists many species that are not threatened and categorised as species of Least Concern (LC). Red List assessments of dragonflies are done by the IUCN Species Survival Commission's Dragonfly Specialist Group, a group of dedicated experts from around the world, including South Africa. Each species is assessed in terms of the threats facing it according to a certain set of criteria. These criteria have been well-researched, and details can be found on the IUCN website (www.iucnredlist.org). All South African, and indeed nearly all African dragonfly species, have been assessed, or what is termed globally Red Listed. This means that their global conservation status has been determined.

As practical conservation management usually takes place at the national or even provincial level, any species can also be given a national Red List status in addition to its global status. This has been done for all the South African dragonflies. Where the species is endemic to the country, the global status will be the same as the national one. These data are essential for the Dragonfly Biotic Index (DBI), as discussed below.

The terms 'Red-Listed species' and 'threatened species' are often confused. A Red-Listed species' conservation status has been assessed and determined – although it may not actually be threatened. 'Threatened species' conservation statuses have been assessed and determined as threatened due to their increased risk of extinction. Threatened species are further categorised according to the severity of their risk of extinction as Vulnerable (VU), Endangered (EN) or Critically Endangered (CR). Some species are categorised as Extinct in the Wild (EW) where their only living representatives are kept in captivity or survive as a naturalised population outside their past range, or Extinct (EX) when there is absolute certainty that the last individual has died. Usually the more optimistic CR category is used for

Table 1.—Species with the ecoregions in which they have been recorded to date. Ecoregions are according to Figure 1

ZYGOPTERA	DAMSELFIES	Alternative names	E1	E2	E3	E4	E5	E6	E7	E8
CALOPTERYGIDAE	DEMOISELLES									
<ul style="list-style-type: none"><i>Phaon iridipennis</i> (Burmeister, 1839)	Glistening Demoiselle		0	1	1	1	1	1	0	1
CHLOROCYPHIDAE	JEWELS									
<ul style="list-style-type: none"><i>Chlorocypha consueta</i> (Karsch, 1899)	Ruby Jewel		0	0	1	0	0	0	0	0
<ul style="list-style-type: none"><i>Platycypha caligata</i> (Sélys, 1853)	Dancing Jewel	Glade Jewel	1	1	1	1	1	1	1	1
<ul style="list-style-type: none"><i>P. fitzsimonsi</i> (Pinhey, 1950)	Boulder Jewel	Fitzsimon’s Jewel	0	0	0	0	0	0	0	0
SYNLESTIDAE	MALACHITES									
<ul style="list-style-type: none"><i>Chlorolestes apricans</i> Wilmot, 1975	Amatola Malachite	Basking Malachite	0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>C. conspicuus</i> Hagen in Sélys, 1862	Conspicuous Malachite		1	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>C. draconicus</i> Balinsky, 1956	Drakensberg Malachite		0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>C. elegans</i> Pinhey, 1950	Elegant Malachite		0	0	0	1	0	0	0	0
<ul style="list-style-type: none"><i>C. fasciatus</i> (Burmeister, 1839)	Mountain Malachite		1	0	1	1	0	0	1	1
<ul style="list-style-type: none"><i>C. tessellatus</i> (Burmeister, 1839)	Forest Malachite		0	0	1	1	0	1	1	1
<ul style="list-style-type: none"><i>C. umbratus</i> Hagen in Sélys, 1862	White Malachite		0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>C. (Ecchlorolestes) nylephtha</i> (Barnard, 1937)	Queen Malachite		1	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>C. (Ecchlorolestes) peringueyi</i> (Ris, 1921)	Rock Malachite	Marbled Malachite	0	0	0	0	0	0	0	0
LESTIDAE	SPREADWINGS									
<ul style="list-style-type: none"><i>Lestes dissimulans</i> Fraser, 1955	Cryptic Spreadwing		0	0	1	0	0	0	0	1
<ul style="list-style-type: none"><i>L. ictericus</i> Gerstäcker, 1869	Tawny Spreadwing		0	0	1	0	0	0	0	0
<ul style="list-style-type: none"><i>L. pallidus</i> Rambur, 1842	Pallid Spreadwing	Pale Spreadwing	1	0	1	1	0	1	1	1
<ul style="list-style-type: none"><i>L. plagiatus</i> (Burmeister, 1839)	Highland Spreadwing		0	1	1	1	1	1	1	1
<ul style="list-style-type: none"><i>L. tridens</i> McLachlan, 1895	Spotted Spreadwing		0	0	1	1	0	1	0	1
<ul style="list-style-type: none"><i>L. uncifer</i> Karsch, 1899	Sickle Spreadwing		0	1	1	0	0	0	0	0
<ul style="list-style-type: none"><i>L. virgatus</i> (Burmeister, 1839)	Smoky Spreadwing		0	0	1	1	1	0	1	1
PLATYCNEMIDIDAE	FEATHERLEGS and THREADTAILS									
<ul style="list-style-type: none"><i>Allocnemis leucosticta</i> Sélys, 1863	Goldtail		1	1	1	1	1	0	0	0
<ul style="list-style-type: none"><i>Spesbona angusta</i> (Sélys, 1863)	Spesbona	Ceres Streamjack	0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>Metacnemis valida</i> Hagen in Sélys, 1863	Blue Streamjack	Kubusi Streamjack	0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>Mesocnemis singularis</i> Karsch, 1891	Savanna Riverjack	Riverjack	1	1	1	0	0	1	0	1
<ul style="list-style-type: none"><i>Elatoneura frenulata</i> (Hagen in Sélys, 1860)	Sooty Threadtail		0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>E. glauca</i> (Sélys, 1860)	Common Threadtail		1	1	1	1	1	1	1	1
COENAGRIONIDAE	POND DAMSELS									
<ul style="list-style-type: none"><i>Ceriagrion glabrum</i> (Burmeister, 1839)	Common Citril		1	1	1	1	1	1	1	1
<ul style="list-style-type: none"><i>C. suave</i> Ris, 1921	Suave Citril		0	0	1	0	0	0	0	0
<ul style="list-style-type: none"><i>Pseudagrion acaciae</i> Förster, 1906	Acacia Sprite	Green-naped Sprite	1	1	1	0	0	0	0	0
<ul style="list-style-type: none"><i>P. assegaii</i> Pinhey, 1950	Assegai Sprite	Spearhead Sprite	0	0	0	0	0	1	1	1
<ul style="list-style-type: none"><i>P. cafferum</i> (Burmeister, 1839)	Springwater Sprite		0	0	0	1	0	0	0	0
<ul style="list-style-type: none"><i>P. citricola</i> Barnard, 1937	Yellow-faced Sprite		0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>P. coeleste</i> Longfield, 1947 <i>coeleste</i> / <i>P. c. umsingaziense</i>	Catshead Sprite (northern and southern forms)		0	0	1	0	0	0	0	0
<ul style="list-style-type: none"><i>P. commoniae</i> (Förster, 1902)	Black Sprite		1	1	1	1	0	0	0	0
<ul style="list-style-type: none"><i>P. draconis</i> Barnard, 1937	Mountain Sprite		0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>P. furcigerum</i> (Rambur, 1842)	Palmiet Sprite		0	0	0	0	0	0	0	0
<ul style="list-style-type: none"><i>P. gamblesi</i> Pinhey, 1978	Great Sprite		0	0	1	1	0	0	0	0

E9	E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30	E31
1	1	0	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	0	0	1
0	0	1	0	0	1	1	1	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	0	0	1	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	1
0	0	0	0	0	1	0	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1
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0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
0	1	1	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	0	0	1	1	1	0	1	1	1	1	0	1	0	1	1	0	1	1	0	0
1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	1	1	0	1	1	1	0	1	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0
0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1.—Species with the ecoregions in which they have been recorded to date. Ecoregions are according to Figure 1 (cont.)

ZYGOPTERA	DAMSELFLIES	Alternative names	E1	E2	E3	E4	E5	E6	E7	E8
COENAGRIONIDAE (cont.)	POND DAMSELS									
• <i>P. hageni</i> Karsch, 1893	Painted Sprite		0	1	1	1	1	0	1	1
• <i>P. hamoni</i> Fraser, 1955	Swarthy Sprite	Drab Sprite	1	1	1	1	1	1	0	1
• <i>P. inopinatum</i> Balinsky, 1971	Balinsky’s Sprite	Badplaas Sprite	0	0	0	0	0	0	0	0
• <i>P. kersteni</i> (Gerstäcker, 1869)	Powder-faced Sprite	Kersten’s Sprite	1	1	1	1	1	1	1	1
• <i>P. makabusiense</i> Pinhey, 1950	Green-striped Sprite	Makabusi Sprite	1	1	0	1	0	1	1	0
• <i>P. massaicum</i> Sjöstedt, 1909	Masai Sprite		1	1	1	1	1	1	1	1
• <i>P. newtoni</i> Pinhey, 1962	Harlequin Sprite		0	0	0	0	0	0	0	0
• <i>P. salisburyense</i> Ris, 1921	Slate Sprite		1	1	1	1	1	1	1	1
• <i>P. sjoestedti</i> Förster, 1906	Variable Sprite	Rufous Sprite	0	0	1	0	0	0	0	0
• <i>P. spernatum</i> Sélys, 1881	Upland Sprite		1	0	0	1	1	0	1	0
• <i>P. sublacteum</i> (Karsch, 1893)	Cherry-eye Sprite		1	1	1	1	0	1	1	1
• <i>P. sudanicum</i> Le Roi,1915	Blue-sided Sprite	Sudan Sprite	0	0	1	1	0	1	0	1
• <i>P. vaalense</i> Chutter, 1962	Vaal Sprite		0	0	0	0	0	0	0	0
• <i>Aciagrion dondoense</i> Dijkstra, 2007	Opal Slim		0	0	0	0	0	0	0	0
• <i>A. gracile</i> (Sjöstedt, 1909)	Graceful Slim	Emerald-striped Slim	0	0	1	0	0	0	0	0
• <i>Ischnura senegalensis</i> (Rambur, 1842)	Tropical Bluetail	Marsh Bluetail	1	1	1	1	0	1	1	1
• <i>Proischnura polychromatica</i> (Barnard, 1937)	Mauve Bluet		0	0	0	0	0	0	0	0
• <i>P. rotundipennis</i> (Ris, 1921)	Round-winged Bluet		0	0	0	0	0	0	1	0
• <i>Africallagma fractum</i> (Ris, 1921)	Slender Bluet		0	0	0	0	0	1	0	0
• <i>A. glaucum</i> (Burmeister, 1839)	Swamp Bluet		1	1	1	1	1	1	1	1
• <i>A. sapphirinum</i> (Pinhey, 1950)	Sapphire Bluet		0	0	0	0	0	0	1	0
• <i>A. sinuatum</i> (Ris, 1921)	Peak Bluet		0	0	0	0	0	0	0	0
• <i>Azuragrion nigradorsum</i> (Sélys, 1876)	Sailing Bluet		1	1	1	1	1	1	1	1
• <i>Agriocnemis exilis</i> Sélys, 1872	Little Wisp		1	0	1	0	0	0	0	1
• <i>A. falcifera</i> Pinhey, 1959	White-masked Wisp		0	0	1	1	0	0	1	0
• <i>A. gratiosa</i> Gerstäcker, 1891	Gracious Wisp		0	0	1	0	0	0	0	0
• <i>A. pinheyi</i> Balinsky, 1963	Pinhey’s Wisp		1	1	0	0	0	1	1	1
• <i>A. ruberrima</i> Balinsky, 1961	Orange Wisp		0	0	0	0	0	0	0	0
ANISOPTERA	DRAGONFLIES									
AESHNIDAE	HAWKERS									
• <i>Pinheyschna subpupillata</i> (McLachlan, 1896)	Stream Hawker		0	1	1	1	1	0	1	1
• <i>Zosteraeschna minuscula</i> (McLachlan, 1896)	Friendly Hawker		0	0	1	0	0	0	1	0
• <i>Z. usambarica</i> (Förster, 1906)	Forest Hawker	Elliot’s Hawker	0	1	1	0	0	0	0	0
• <i>Anaciaeschna triangulifera</i> McLachlan, 1896	Evening Hawker		0	0	1	1	0	0	0	1
• <i>Anax ephippiger</i> (Burmeister, 1839)	Vagrant Emperor		1	1	1	1	1	1	1	1
• <i>A. imperator</i> Leach, 1815	Blue Emperor		1	1	1	1	1	1	1	1
• <i>A. speratus</i> Hagen, 1867	Orange Emperor		1	1	1	1	1	1	1	1
• <i>A. tristis</i> Hagen, 1867	Black Emperor		1	0	1	0	1	1	0	1
• <i>Gynacantha manderica</i> Grünberg, 1902	Little Duskhawker		0	0	1	0	0	0	0	0
• <i>G. usambarica</i> Sjöstedt, 1909	Eastern Duskhawker	Usambara Duskhawker	0	0	0	0	0	0	0	0
• <i>G. villosa</i> Grünberg, 1902	Brown Duskhawker		0	0	0	0	0	0	0	0
GOMPHIDAE	CLUBTAILS									
• <i>Ictinogomphus ferox</i> (Rambur, 1842)	Common Tigertail		1	1	1	1	1	1	1	1
• <i>Gomphidia quarrei</i> (Schouteden, 1934)	Southern Fingertail	Quarre’s Fingertail	0	0	1	0	0	0	0	0

E9	E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30	E31
1	1	1	0	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1
0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	0	1	0
0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	0	1
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1	1	1	0	0	1	1	1	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0
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0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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1	1	1	0	0	1	1	1	1	1	1	1	0	1	1	1	0	1	0	0	0	0	0
1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
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1	1	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1.—Species with the ecoregions in which they have been recorded to date. Ecoregions are according to Figure 1 (cont.)

ANISOPTERA		DRAGONFLIES		E1	E2	E3	E4	E5	E6	E7	E8
GOMPHIDAE (cont.)		CLUBTAILS									
• <i>Lestigomphus angustus</i> Martin, 1911	Spined Fairytail			1	0	1	1	0	1	1	0
• <i>Notogomphus praetorius</i> (Sélys, 1878)	Yellowjack			0	1	0	1	0	0	0	1
• <i>Neurogomphus zambeziensis</i> Cammaerts, 2004	Zambezi Siphontail			1	0	1	0	0	0	0	0
• <i>Phyllogomphus selysi</i> Schouteden, 1933	Bold Leaftail			0	0	1	0	0	0	0	0
• <i>Crenigomphus cornutus</i> Pinhey, 1956	Horned Talontail			0	0	1	0	0	0	0	0
• <i>C. hartmanni</i> (Förster, 1898)	Clubbed Talontail			0	0	1	0	0	0	0	0
• <i>Ceratogomphus pictus</i> Sélys, 1854	Common Thorntail			0	1	1	1	0	1	1	1
• <i>C. triceraticus</i> Balinsky, 1963	Cape Thorntail			0	0	0	0	0	0	0	0
• <i>Paragomphus cognatus</i> (Rambur, 1842)	Rock Hooktail			1	1	1	1	1	1	1	1
• <i>P. elpidius</i> (Ris, 1921)	Corkscrew Hooktail			1	0	1	0	0	0	0	0
• <i>P. genei</i> (Sélys, 1841)	Common Hooktail	Green Hooktail		1	1	1	1	0	1	1	1
• <i>P. magnus</i> (Fraser 1952)	Great Hooktail			0	0	1	0	0	0	0	0
• <i>P. sabicus</i> Pinhey, 1950	Flapper Hooktail	Sabi Hooktail		1	0	0	0	0	0	0	0
• <i>Onychogomphus supinus</i> Sélys, 1854	Lined Claspertail	Gorge Claspertail		0	0	1	1	0	0	0	0
CORDULIIDAE		EMERALDS									
• <i>Syncordulia gracilis</i> (Burmeister, 1839)	Yellow Presba			0	0	0	0	0	0	0	0
• <i>S. legator</i> Dijkstra, Samways & Simaika, 2007	Gilded Presba			0	0	0	0	0	0	0	0
• <i>S. serendipator</i> Dijkstra, Samways & Simaika, 2007	Rustic Presba			0	0	0	0	0	0	0	0
• <i>S. venator</i> (Barnard, 1933)	Mahogany Presba			0	0	0	0	0	0	0	0
• <i>Hemicordulia africana</i> Dijkstra, 2007	African Emerald			0	0	0	0	0	0	0	0
• <i>Phyllomacromia contumax</i> Sélys, 1879	Two-banded Cruiser			0	1	1	1	0	1	1	1
• <i>P. monoceros</i> (Förster, 1906)	Sable Cruiser	Unicorn Cruiser		0	1	0	1	0	0	0	0
• <i>P. picta</i> (Hagen in Sélys, 1871)	Darting Cruiser			1	1	1	1	0	0	1	1
LIBELLULIDAE		SKIMMERS									
• <i>Tetrathemis polleni</i> (Sélys, 1869)	Black-splashed Elf			0	1	1	1	0	0	0	0
• <i>Notiothemis jonesi</i> Ris, 1919	Eastern Forestwatcher	Jones’ Forestwatcher		0	1	1	1	0	0	0	0
• <i>Orthetrum abbotti</i> Calvert, 1892	Little Skimmer			1	1	1	0	1	1	1	1
• <i>O. brachiale</i> (Palisot de Beauvois, 1817)	Tough Skimmer			0	0	1	0	0	0	0	0
• <i>O. caffrum</i> (Burmeister, 1839)	Two-striped Skimmer			0	1	1	1	0	0	1	1
• <i>O. chrysostigma</i> (Burmeister, 1839)	Epaulet Skimmer			1	1	1	1	1	1	1	1
• <i>O. guineense</i> Ris, 1910	Guinea Skimmer			1	0	0	1	0	0	1	0
• <i>O. hintzi</i> Schmidt, 1951	Dark-shouldered Skimmer	Hintz’s Skimmer		0	0	1	0	0	1	1	1
• <i>O. icteromelas</i> Ris, 1910	Spectacled Skimmer			1	1	1	0	0	1	0	1
• <i>O. julia julia</i> Kirby, 1900/ <i>O.j. capicola</i>	Julia Skimmer (northern and Cape forms)			1	1	1	1	1	1	1	1
• <i>O. machadoi</i> Longfield, 1955	Highland Skimmer	Machado’s Skimmer		1	1	1	1	1	1	1	1
• <i>O. monardi</i> Schmidt, 1951	Woodland Skimmer			0	0	0	0	0	0	0	0
• <i>O. robustum</i> Balinsky, 1965	Robust Skimmer			0	0	1	0	0	0	0	0
• <i>O. rubens</i> Barnard, 1937	Elusive Skimmer			0	0	0	0	0	0	0	0
• <i>O. stemmale</i> (Burmeister, 1839)	Bold Skimmer	Strong Skimmer		1	0	1	1	0	0	1	0
• <i>O. trinacria</i> (Sélys, 1841)	Long Skimmer			1	1	1	0	1	1	1	1
• <i>Nesciothemis farinosa</i> (Förster, 1898)	Eastern Blacktail	Black-tailed Skimmer		1	1	1	1	1	1	1	1
• <i>Palpopleura deceptor</i> (Calvert, 1899)	Deceptive Widow			1	0	1	0	0	1	1	1

E9	E10	E11	E12	E13	E14	E15	E16	E17	E18	E19	E20	E21	E22	E23	E24	E25	E26	E27	E28	E29	E30	E31
0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	0	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	1
0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0
1	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	0	0	0	0	1
1	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
1	1	1	0	1	1	0	0	1	0	0	1	0	1	1	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	0	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	1	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	1	1	0	0
0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	1	1	1	0	1	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0

Table 1.—Species with the ecoregions in which they have been recorded to date. Ecoregions are according to Figure 1 (cont.)

ANISOPTERA		DRAGONFLIES		E1	E2	E3	E4	E5	E6	E7	E8
LIBELLULIDAE (cont.)		SKIMMERS									
• <i>P. jucunda jucunda</i> Rambur, 1842	Yellow-veined Widow			1	1	1	1	1	1	1	1
• <i>P. lucia</i> (Drury, 1773)	Lucia Widow			1	1	1	1	1	1	1	1
• <i>P. portia</i> (Drury, 1773)	Portia Widow			0	0	1	0	0	1	1	1
• <i>Chalcostephia flavifrons</i> Kirby, 1889	Inspector			0	0	0	0	0	0	0	0
• <i>Hemistigma albipunctum</i> (Rambur, 1842)	African Piedspot	Pied-spot		0	0	1	0	0	0	0	1
• <i>Acisoma inflatum</i> Selys, 1882 / <i>A. variegatum</i> Kirby, 1898	Stout Pintail / Slender Pintail	Grizzled Pintail		1	1	1	1	0	1	1	1
• <i>Diplacodes lefebvrii</i> (Rambur, 1842)	Black Percher			1	1	1	1	0	1	1	1
• <i>D. luminans</i> (Karsch, 1893)	Barbet Percher			1	1	1	0	0	1	1	1
• <i>D. pumila</i> Dijkstra, 2006	Dwarf Percher	Little Percher		0	0	0	0	0	0	0	0
• <i>Crocothemis divisa</i> Karsch, 1898	Rock Scarlet	Divisa Scarlet		0	0	0	0	0	0	0	1
• <i>C. erythraea</i> (Brullé, 1832)	Broad Scarlet			1	1	1	1	1	1	1	1
• <i>C. sanguinolenta</i> (Burmeister, 1839)	Little Scarlet			1	1	1	1	1	1	1	1
• <i>Bradinopyga cornuta</i> Ris, 1911	Horned Rockdweller			1	1	1	1	0	1	0	1
• <i>Brachythemis lacustris</i> (Kirby, 1889)	Red Groundling			1	1	1	0	0	0	0	1
• <i>B. leucosticta</i> (Burmeister, 1839)	Banded Groundling			1	1	1	1	1	1	1	1
• <i>Sympetrum fonscolombii</i> (Sélys, 1840)	Nomad			1	1	1	0	1	0	1	1
• <i>Trithemis aconita</i> Lieftinck, 1969	Halfshade Dropwing	Monkshood Dropwing		0	1	1	0	0	1	0	0
• <i>T. annulata</i> (Palisot de Beauvois, 1807)	Violet Dropwing			1	1	1	1	0	0	0	1
• <i>T. arteriosa</i> (Burmeister, 1839)	Red-veined Dropwing			1	1	1	1	1	1	1	1
• <i>T. donaldsoni</i> (Calvert, 1899)	Denim Dropwing			1	1	1	1	1	1	1	0
• <i>T. dorsalis</i> (Rambur, 1842)	Highland Dropwing	Round-hook Dropwing		1	1	1	1	1	0	1	1
• <i>T. furva</i> Karsch, 1899	Navy Dropwing			1	1	1	1	1	1	1	1
• <i>T. hecate</i> Ris, 1912	Silhouette Dropwing			1	1	1	0	0	0	0	1
• <i>T. kirbyi</i> Sélys, 1891	Orange-winged Dropwing	Kirby’s Dropwing		1	1	1	1	1	1	1	1
• <i>T. pluvialis</i> Förster, 1906	Russet Dropwing	Rifle-and-Reed Dropwing		1	1	0	1	0	1	1	1
• <i>T. stictica</i> (Burmeister, 1839)	Jaunty Dropwing			1	1	1	1	1	1	1	1
• <i>T. weneri</i> Ris, 1912	Elegant Dropwing			1	0	1	0	0	0	0	0
• <i>Zygonyx natalensis</i> (Martin, 1900)	Blue Cascader	Scuffed Cascader		1	1	1	1	1	1	0	1
• <i>Z. torridus</i> (Kirby, 1889)	Ringed Cascader			1	1	1	1	1	1	1	1
• <i>Zygonoïdes fuelleborni</i> Grünberg, 1902	Southern Riverking	Robust Riverking		1	0	1	1	0	0	0	0
• <i>Olpogastra lugubris</i> Karsch, 1895	Bottletail	Slender Bottletail		1	0	1	0	0	0	0	1
• <i>Rhyothemis semihyalina</i> (Desjardins, 1832)	Phantom Flutterer			1	1	1	0	0	1	1	1
• <i>Zyomma atlanticum</i> Sélys, 1889	Smoky Duskdarter			0	0	0	0	0	0	0	0
• <i>Parazyomma flavicans</i> (Martin, 1908)	Banded Duskdarter			0	0	0	0	0	0	0	0
• <i>Tholymis tillarga</i> (Fabricius, 1798)	Twister			1	0	1	0	0	0	1	1
• <i>Pantala flavescens</i> (Fabricius, 1798)	Pantala	Wandering Glider		1	1	1	1	0	1	1	1
• <i>Tramea basilaris</i> (Palisot de Beauvois, 1817)	Keyhole Glider			1	1	1	1	0	1	1	1
• <i>T. limbata</i> (Desjardins, 1832)	Ferruginous Glider	Voyaging Glider		1	1	1	1	0	0	1	1
• <i>Urothemis assignata</i> (Sélys, 1872)	Red Basker			1	1	1	0	0	0	1	1
• <i>U. edwardsii</i> (Sélys, 1849)	Blue Basker			1	1	1	1	0	1	0	1
• <i>U. luciana</i> Balinsky, 1961	St Lucia Basker			0	0	0	0	0	0	0	0
• <i>Aethriamanta rezia</i> Kirby, 1889	Pygmy Basker			0	0	1	0	0	0	0	0
• <i>Macrodiplax cora</i> (Kaup in Brauer, 1867)	Coastal Pennant	Cora’s Pennant		0	0	0	0	0	0	0	0

[illegible]

species facing an extremely high risk of extinction, as there is always the possibility that an unknown population will be discovered. No South African dragonfly species are categorised as EX.

As previously mentioned, species that are not under immediate threat of extinction are categorised as LC. Some LC species could potentially be threatened as their associated data may be insufficient or the exact extent and severity of their threats are uncertain; these species are categorised as Near Threatened (NT). Despite best efforts to obtain data at the time of an assessment, there may simply not be enough information available to make an assessment of a particular species' risk of extinction; these species are categorised as Data Deficient (DD). Fortunately we have sufficient information to categorise all the South African dragonfly species and none are listed as DD.

The Red List status of any particular species could change over time. It is, in effect, a current conservation status that can change if species are reassessed following a deterioration of environmental conditions and consequent increased threat levels. Often species are categorised into higher threat categories after such reassessments. In other cases, conservation action may have improved environmental conditions so that populations of certain species may have stabilised or increased. In such cases species could be down-listed to other categories after reassessments. This process, one way or another, usually takes many years and does not affect the DBI in any major way.

The Dragonfly Biotic Index

The Dragonfly Biotic Index (DBI) is an index of freshwater conditions. It is based primarily on the presence of the adults of the species. However, this does not exclude gathering of supplementary data on larvae and/or exuviae to confirm the presence of any other species. The DBI is robust, versatile and sensitive, as it operates at the species level.

Dragonflies are highly mobile, rapidly coming and going depending on favourable or deteriorating environmental conditions. Their presence is an indication of the condition of the freshwater body, whether running or still. In effect, it is a translation of the physical conditions into a suite of indicator species. In other words, the set of dragonflies recorded at a particular site defines that site in terms of its suitability for a particular set of species which can live there. The ecological integrity (as defined by the suite of species) at one site is considered the same as that of another when the same set of dragonflies is present. The same applies to the set of species DBI values.

The DBI/Site (i.e. the total DBI scores for a site divided by the total number of species) can be used to compare sites, or it can be used to compare one site over time. This means that it can be used to compare the ecological integrity or conservation status of certain streams or ponds across space or over time. It can be used to compare, for example, how one river compares with another one nearby, or how a river recovers when invasive alien trees are removed (e.g. as part of the government's Working for Water Programme). Data can also be stored and compared with new sets collected at later dates.

The following distinct features of the DBI enhance its usability and effectiveness. The DBI:

- requires little equipment (a pair of close-focus binoculars, a physical or digital means for recording data, a collecting net, a hand lens and envelopes) (see below);
- is rapid, i.e. data can be collected quickly and with relative ease;
- is safe, as it is not necessary to enter the water;
- is sensitive, as it works at the species level; and
- can be used throughout South Africa at any type of water body, running or still.

Nevertheless, there are some constraints which must be recognised. The DBI:

- can only be done from late spring through to autumn, with slight regional modifications (assessments cannot be done in winter as there are few flying adults at this time of year and results would be misleading); and
- assessments should be done on still or fairly still, sunny or slightly overcast, warm days, and not on windy, rainy or cold days.

The usefulness of the DBI can be compared to the South African Scoring System (SASS) which uses higher macroinvertebrate taxa. The two methods give similar overall results. Nevertheless, the advantages of the DBI over SASS include the following:

- The DBI uses species rather than the higher taxa as in SASS, and so it is inevitably likely to be more sensitive. Also, species data are accumulated at a much faster rate and with much more ease as there is not the laborious collecting of specimens.
- Once a high level of skill in recognition of the adult dragonflies is attained (which is comparable to learning bird species), the DBI is much easier to use than SASS.
- The DBI is much safer than SASS, as there is rarely any need to wade in the water with its inherent slipperiness, currents, potentially dangerous animals and pathogens.

- It is much less stressful and less cumbersome than SASS, as waders are not usually required, and there is less equipment to carry. It can also be completed much quicker along the relative comfort of the bank.

However, one advantage of SASS is that it can be done in the winter and on cold, overcast days, although this may well give different results from assessments done in other seasons. (See further comparisons of the DBI and SASS on p. 31).

The DBI sub-indices

The DBI value for each dragonfly species has been determined based on three sub-indices:

- Categorized geographical distribution;
- Red List (Threat Status) (either global or national); and

- Sensitivity to anthropogenic disturbance to its habitat, with particular reference to alien invasive riparian trees which are the greatest threat.

Each sub-index of the DBI ranges from 0–3 (see Table 2). The DBI for a species is the sum of the scores for the three sub-indices, and ranges from 0–9. A common, widespread, not-threatened and highly tolerant (of disturbance) species would score 0 (0 + 0 + 0), while a highly range-restricted, threatened and sensitive species would score 9 (3 + 3 + 3).

Sub-index 1: Distribution

The first sub-index, distribution, refers to the geographical range of a species. This is largely exact but as provinces are political boundaries, and as dragonflies are highly mobile organisms, occasional individuals may occur across provincial boundaries.

Table 2.—Sub-indices of the Dragonfly Biotic Index

Score	Distribution	Threat	Sensitivity
0	Very common throughout South Africa and in southern Africa.	LC(GS and NS)	Not sensitive; almost impervious to habitat disturbance and may even benefit from habitat change due to alien plants; may thrive in artificial waterbodies.
1	Localised across a wide area in South Africa, and localised or common in southern Africa; or very common in 1–3 South African provinces, and localised or common in southern Africa.	NT(GS and/or NS) or VU(NS)	Low sensitivity to habitat change from alien plants; may occur commonly in artificial waterbodies.
2	National endemic confined to three or more South African provinces; or widespread in southern Africa, but marginal and very rare in South Africa.	VU(GS), or EN or CR(NS)	Medium sensitivity to habitat disturbance (e.g. alien plants and bank disturbance); may have been recorded from artificial waterbodies.
3	Endemic or near-endemic and confined to only one or two South African provinces.	EN or CR(GS) (= EN or CR(NS))	Extremely sensitive to habitat change from alien plants; only occurs in undisturbed natural habitat.

LC = Least Concern; NT = Near Threatened; VU = Vulnerable; EN = Endangered; CR = Critically Endangered; NS = National Status; GS = Global Status. Always use the highest Threat status.

Examples of how the Dragonfly Biotic Index scores were calculated

1. Opal Slim (*Aciagrion dondoense*): only recorded in KwaZulu-Natal, but occurs elsewhere in Africa = 2; highly prone to drought and not recorded in South Africa since 2004, making it nationally Vulnerable (but common elsewhere in Africa) = 1; only recorded under natural conditions, but one site with small dam wall = 2; TOTAL = 5.
2. Amatola Malachite (*Chlorolestes apricans*): only recorded from the Eastern Cape = 3; National and global threat status is EN = 3; extremely sensitive to habitat change, especially alien plants and cattle trampling of banks = 3; TOTAL = 9.
3. Broad Scarlet (*Crocothemis erythraea*): very common in artificial dams and even where invasive alien trees dominate = 0; threat status is LC = 0; little affected by habitat (biotope) change, and is even common in artificial waters = 0; TOTAL = 0.

Sub-index 2: Red List or threat status

For the Red List or threat status, there are both global statuses (GS) and national statuses (NS). Global threat statuses are available on the Red List website (www.iucnredlist.org). For nationally endemic species the Red List category is the same for both GS and NS. For very widespread species (score 0) only the global status is considered – these species are usually common, geographically widespread, and not considered threatened. They would typically be categorised as Least Concern (LC) (see www.iucnredlist.org for these categories and how they are determined). For scores of 1 to 3 a species is considered either in terms of its GS or NS:

- A sub-index score of 1 means that the species is either globally Near Threatened (i.e. NT; GS), or nationally Vulnerable (i.e. VU; NS).
- A sub-index score of 2 means that the species is either globally Vulnerable (i.e. VU; GS), or nationally Endangered or Critically Endangered (i.e. EN; NS or CR; NS).
- A sub-index score of 3 means that the species is highly threatened. These include near-endemic species that are globally Critically Endangered (i.e. CR; GS) and true (narrow) endemics, confined to only one or two provinces, and are nationally Endangered or Critically Endangered (i.e. EN; NS or CR; NS). These species require urgent conservation management to save them from extinction.

Sub-index 3: Sensitivity

The sensitivity sub-index relates to how sensitive a species is to changes in its natural habitat. Some species may remain virtually unaffected by invasive alien trees. Some species thrive in artificial waterbodies, such as dams or artificial ditches. These species can often be more common in artificial waterbodies than in fully natural habitats. Such species have a sensitivity sub-index score of 0. The species that score 1 tend to be more commonly seen in their natural habitat but may also be common where there is disturbance to their natural habitat, by, for example, alien plants (in the water or on the bank) or in the face of cattle trampling. They may also be seen at artificial waterbodies. Species that score 2 are most commonly seen in a fully natural habitat, but may also (although rarely) occur where there is some disturbance or in well-established artificial waterbodies, such as well-vegetated dams with constant water levels. Species that score 3 are highly sensitive to any change in their natural habitat, and to date have only been recorded under fully natural environmental conditions.

Table 3 lists dragonfly and damselfly species with their national and global Red List categories and criteria, as well as their sub-indices and species DBIs.

Steps and recommendations for determining DBI values

The determination of a site's freshwater quality by using the DBI involves a series of straightforward steps and recommendations:

1. Be absolutely clear on the conservation or assessment question being posed. For example, the aim may be to determine the extent to which the freshwater fauna recovers following removal of invasive alien trees, or it may be to determine which stream requires special protection out of many possible alternatives, or it may be to assess the value of various wetlands in large-scale ecological networks in forestry areas.
2. Ensure that all resources required to do the assessments are available. See point 3 for details on numbers of locality visits, time required per visit, etc.
3. Obtain the necessary equipment (Figure 2) which must include:
 - a. A pair of close-focus binoculars. These must be tested before purchase. A general rule of thumb: you must be able to obtain sharp focus on the tips of your toes when looking through them. If that is not possible, try another pair. Generally the most suitable pairs are 8×32.
 - b. A collecting net of ca. 38 to 46°cm in diameter with relatively soft netting, and a wide mesh size to reduce wind resistance, on a solid, preferably foldable rim. Most collectors prefer a dark colour like black or green, but white is also widely used. The pole should be stout, at least 1.2°m long, and preferably collapsible/telescoping. This can be obtained from commercial biological or entomological supply companies, or you can make your own (see Samways et al. 2010).
 - c. A good 10× + 20× hand lens.
 - d. Paper envelopes. These are for temporary storage of caught individuals. Specimens should be carefully handled and their wings folded back behind them before placing them into envelopes. Envelopes should be kept in a tough plastic container, such as a lunchbox or camera case, to prevent damage to the specimens. Envelopes can also be made from newspaper, which is inherently porous and airy.
 - e. A large-mouthed jar of acetone. This is not essential, but when the envelopes are immersed in the jar overnight, the process fixes the colours of the specimens

and preserves them, preventing possible fungal decay.

- f. Transparent, acid free envelopes for permanent storage. These are available from the International Odonata Research Institute (c/o Florida Division of Plant Industry, 1911 SW 34 St, Gainesville, Florida, USA; e-mail: iodonata@bellsouth.net; website: www.iodonata.net). If these are unobtainable, old-fashioned acid free cards used for card indexes can be used. You can also cut out 125 × 75 mm cards. This card should contain the following specimen information (written or printed): exact location with Global Positioning System (GPS) coordinates if possible, habitat type, date collected, and name of collector. Once the specimen is thor-

oughly dry it can be wrapped with the card using kitchen clingwrap.

- g. A GPS unit.
 - h. A method of data recording, whether as a hard copy by hand, or digitally.
4. It is not necessary to collect many specimens, but it is useful to make a reference collection. It is only necessary to collect one (or a few at most) of each species. An important point here is that it may be necessary to be in possession of the appropriate collecting permit for your sites. If it is not possible to obtain such a permit, it is essential to photograph the individuals from all angles. Even with photographs it will not necessarily be possible to name all species without examining details of their morphology,



Figure 2.—Above left: an essential piece of equipment, a pair of 8×32 close-focus binoculars. Also shown here is a close-focus monocular which can easily be carried in a pocket for emergency use. Above right: Another essential piece of equipment, a net for catching specimens to make a reference collection, or to collect difficult to identify specimens. Notice that the handle is long and stout making for a good hiking stick as well. This is useful when negotiating slippery banks and stream bottoms. While undertaking DBI assessments does not require entry into the water, it can sometimes be valuable to do so to get a better view of an unfamiliar species, to assist with collecting specimens, or to photograph dragonflies, especially at new sites. Below left: Temporary storage envelopes can be made out of newspaper as shown here. The wings are folded back behind the body as shown for the butterfly (these envelopes are usually used for butterflies). Below right: clear, permanent storage envelopes with all the necessary data presented clearly on the card. Also shown is a hand lens with 10× and 20× lenses for close inspection of specimens when first becoming familiar with the DBI.

Table 3.—Species with their national and global Red List (RL) categories and criteria. The RL criteria are used to determine species' categories and are described in detail on www.iucnredlist.org. Also given are all the sub-indices for each species, and their totals, i.e. the species DBI

ZYGOPTERA	DAMSELFLIES	Alternative names	National RL Category
CALOPTERYGIDAE	DEMOISELLES		
• <i>Phaon iridipennis</i> (Burmeister, 1839)	Glistening Demoiselle		LC
CHLOROCYPHIDAE	JEWELS		
• <i>Chlorocypha consueta</i> (Karsch, 1899)	Ruby Jewel		CR
• <i>Platycypha caligata</i> (Sélys, 1853)	Dancing Jewel	Glade Jewel	LC
• <i>P. fitzsimonsi</i> (Pinhey, 1950)	Boulder Jewel	Fitzsimon's Jewel	LC
SYNLESTIDAE	MALACHITES		
• <i>Chlorolestes apricans</i> Wilmot, 1975	Amatola Malachite	Basking Malachite	EN
• <i>C. conspicuus</i> Hagen in Sélys, 1862	Conspicuous Malachite		LC
• <i>C. draconicus</i> Balinsky, 1956	Drakensberg Malachite		LC
• <i>C. elegans</i> Pinhey, 1950	Elegant Malachite		VU
• <i>C. fasciatus</i> (Burmeister, 1839)	Mountain Malachite		LC
• <i>C. tessellatus</i> (Burmeister, 1839)	Forest Malachite		LC
• <i>C. umbratus</i> Hagen in Sélys, 1862	White Malachite		LC
• <i>C. (Ecchlorolestes) nylephtha</i> (Barnard, 1937)	Queen Malachite		NT
• <i>C. (Ecchlorolestes) peringueyi</i> (Ris, 1921)	Rock Malachite	Marbled Malachite	NT
LESTIDAE	SPREADWINGS		
• <i>Lestes dissimulans</i> Fraser, 1955	Cryptic Spreadwing		VU
• <i>L. ictericus</i> Gerstäcker, 1869	Tawny Spreadwing		VU
• <i>L. pallidus</i> Rambur, 1842	Pallid Spreadwing	Pale Spreadwing	LC
• <i>L. plagiatus</i> (Burmeister, 1839)	Highland Spreadwing		LC
• <i>L. tridens</i> McLachlan, 1895	Spotted Spreadwing		LC
• <i>L. uncifer</i> Karsch, 1899	Sickle Spreadwing		VU
• <i>L. virgatus</i> (Burmeister, 1839)	Smoky Spreadwing		LC
PLATYCNEMIDIDAE	FEATHERLEGS and THREADTAILS		
• <i>Allocnemis leucosticta</i> Sélys, 1863	Goldtail		LC
• <i>Spesbona angusta</i> (Sélys, 1863)	Spesbona	Ceres Streamjack	EN
• <i>Metacnemis valida</i> Hagen in Sélys, 1863	Blue Streamjack	Kubusi Streamjack	EN
• <i>Mesocnemis singularis</i> Karsch, 1891	Savanna Riverjack	Riverjack	LC
• <i>Elatoneura frenulata</i> (Hagen in Sélys, 1860)	Sooty Threadtail		LC
• <i>E. glauca</i> (Sélys, 1860)	Common Threadtail		LC
COENAGRIONIDAE	POND DAMSELS		
• <i>Ceriagrion glabrum</i> (Burmeister, 1839)	Common Citril		LC
• <i>C. suave</i> Ris, 1921	Suave Citril		EN
• <i>Pseudagrion acaciae</i> Förster, 1906	Acacia Sprite	Green-naped Sprite	LC
• <i>P. assegaii</i> Pinhey, 1950	Assegai Sprite	Spearhead Sprite	VU

National RL Criteria	Global RL Category	Global RL Criteria	Distribution Sub-index	Threat Status Sub-index	Sensitivity Sub-index	Species DBI
	LC		1	0	1	2
D2	LC		3	2	2	7
	LC		1	0	1	2
	LC		2	0	2	4
B2ab(i,ii,iii,iv)	EN	B2ab(i,ii,iii,iv)	3	3	3	9
	LC		3	0	3	6
	LC		3	0	3	6
A2a; B2ab(i,ii,iii,iv), D2	NT		3	1	2	6
	LC		2	0	2	4
	LC		2	0	2	4
	LC		3	0	2	5
	NT		3	1	3	7
	NT		3	1	3	7
D2	LC		2	1	2	5
D2	LC		2	1	3	6
	LC		1	0	1	2
	LC		1	0	1	2
	LC		2	0	1	3
	LC		2	1	2	5
	LC		1	0	1	2
	LC		2	0	3	5
A2c;B1ab(i,ii,iii) + 2ab(i,ii,iii), D2	EN	A2c;B1ab(i,ii,iii), D2	3	3	3	9
A2c;B1ab(i,ii,iii) + 2ab(i,ii,iii)	EN	A2c;B1ab(i,ii,iii)	3	3	3	9
	LC		2	0	1	3
	LC		3	0	2	5
	LC		0	0	1	1
	LC		0	0	0	0
D2	LC		3	2	2	7
	LC		2	0	1	3
B1ab(i,ii,iii,iv)	LC		2	1	2	5

Table 3.—Species with their national and global Red List (RL) categories and criteria. The RL criteria are used to determine species' categories and are described in detail on www.iucnredlist.org. Also given are all the sub-indices for each species, and their totals, i.e. the species DBI (cont.)

ZYGOPTERA	DAMSELFIES	Alternative names	National RL Category
COENAGRIONIDAE (cont.)		POND DAMSELS	
• <i>P. cafferum</i> (Burmeister, 1839)	Springwater Sprite		LC
• <i>P. citricola</i> Barnard, 1937	Yellow-faced Sprite		LC
• <i>P. coeleste coeleste</i> Longfield, 1947	Catshead Sprite (northern form)		LC
• <i>P. coeleste umsingaziense</i>	Catshead Sprite (southern form)		VU
• <i>P. commoniae</i> (Förster, 1902)	Black Sprite		LC
• <i>P. draconis</i> Barnard, 1937	Mountain Sprite		LC
• <i>P. furcigerum</i> (Rambur, 1842)	Palmiet Sprite		NT
• <i>P. gamblesi</i> Pinhey, 1978	Great Sprite		LC
• <i>P. hageni</i> Karsch, 1893 <i>hageni</i>	Painted Sprite (southern form)		LC
• <i>P. hageni tropicanum</i>	Painted Sprite (northern form)		LC
• <i>P. hamoni</i> Fraser, 1955	Swarthy Sprite	Drab Sprite	LC
• <i>P. inopinatum</i> Balinsky, 1971	Balinsky's Sprite	Badplaas Sprite	NT
• <i>P. kersteni</i> (Gerstäcker, 1869)	Powder-faced Sprite	Kersten's Sprite	LC
• <i>P. makabusiense</i> Pinhey, 1950	Green-striped Sprite	Makabusi Sprite	VU
• <i>P. massaicum</i> Sjöstedt, 1909	Masai Sprite		LC
• <i>P. newtoni</i> Pinhey, 1962	Harlequin Sprite		VU
• <i>P. salisburyense</i> Ris, 1921	Slate Sprite		LC
• <i>P. sjoestedti</i> Förster, 1906	Variable Sprite	Rufous Sprite	VU
• <i>P. spernatum</i> Sélys, 1881	Upland Sprite		LC
• <i>P. sublacteum</i> (Karsch, 1893)	Cherry-eye Sprite		LC
• <i>P. sudanicum</i> Le Roi, 1915	Blue-sided Sprite	Sudan Sprite	LC
• <i>P. vaalense</i> Chutter, 1962	Vaal Sprite		LC
• <i>Aciagrion dondoense</i> Dijkstra, 2007	Opal Slim		VU
• <i>A. gracile</i> (Sjöstedt, 1909)	Graceful Slim	Emerald-striped Slim	VU
• <i>Ischnura senegalensis</i> (Rambur, 1842)	Tropical Bluetail	Marsh Bluetail	LC
• <i>Proischnura polychromatica</i> (Barnard, 1937)	Mauve Bluet		EN
• <i>P. rotundipennis</i> (Ris, 1921)	Round-winged Bluet		LC
• <i>Africallagma fractum</i> (Ris, 1921)	Slender Bluet		LC
• <i>A. glaucum</i> (Burmeister, 1839)	Swamp Bluet		LC
• <i>A. sapphirinum</i> (Pinhey, 1950)	Sapphire Bluet		LC
• <i>A. sinuatum</i> (Ris, 1921)	Peak Bluet		LC
• <i>Azuragrion nigradorsum</i> (Sélys, 1876)	Sailing Bluet		LC
• <i>Agriocnemis exilis</i> Sélys, 1872	Little Wisp		LC
• <i>A. falcifera</i> Pinhey, 1959	White-masked Wisp		LC
• <i>A. gratiosa</i> Gerstäcker, 1891	Gracious Wisp		VU
• <i>A. pinheyi</i> Balinsky, 1963	Pinhey's Wisp		LC
• <i>A. ruberrima</i> Balinsky, 1961	Orange Wisp		EN

National RL Criteria	Global RL Category	Global RL Criteria	Distribution Sub-index	Threat Status Sub-index	Sensitivity Sub-index	Species DBI
	LC		2	0	3	5
	LC		2	0	1	3
	LC		2	0	2	4
B2ab(ii,iii), D2	VU	B2ab(ii,iii), D2	3	2	2	7
	LC		1	0	1	2
	LC		2	0	2	4
	LC		3	1	3	7
	LC		2	0	2	4
	LC		3	0	2	5
	LC		0	0	2	2
	LC		1	0	1	2
	NT		3	1	3	7
	LC		0	0	1	1
B1ab(i,ii,iii,iv)	LC		2	1	2	5
	LC		0	0	1	1
D2	VU	D2	3	2	3	8
	LC		0	0	1	1
D2	LC		2	1	3	6
	LC		1	0	2	3
	LC		1	0	1	2
	LC		2	0	2	4
	LC		3	0	2	5
B2ab(ii,iii), D2	LC		2	1	2	5
B2ab(ii,iii), D2	LC		2	1	3	6
	LC		0	0	0	0
B1ab(i,ii,iii,iv) + 2ab(i,ii,iii,iv)	EN	B1ab(i,ii,iii,iv) + 2ab(i,ii,iii,iv)	3	3	3	9
	LC		2	0	2	4
	LC		2	0	2	4
	LC		0	0	1	1
	LC		2	0	2	4
	LC		2	0	3	5
	LC		1	0	2	3
	LC		2	0	2	4
	LC		3	0	1	4
D2	LC		2	1	2	5
	LC		1	0	1	2
A2ab;B1ab (i,ii,iii,iv) + 2ab (i,ii,iii,iv)	LC		3	2	3	8

Table 3.—Species with their national and global Red List (RL) categories and criteria. The RL criteria are used to determine species' categories and are described in detail on www.iucnredlist.org. Also given are all the sub-indices for each species, and their totals, i.e. the species DBI (cont.)

ANISOPTERA	DRAGONFLIES	Alternative names	National RL Category
AESHNIDAE	HAWKERS		
• <i>Pinheyschna subpupillata</i> (McLachlan, 1896)	Stream Hawker		LC
• <i>Zosteraeschna minuscula</i> (McLachlan, 1896)	Friendly Hawker		LC
• <i>Z. usambarica</i> (Förster, 1906)	Forest Hawker	Elliot's Hawker	VU
• <i>Anaciaeschna triangulifera</i> McLachlan, 1896	Evening Hawker		LC
• <i>Anax ephippiger</i> (Burmeister, 1839)	Vagrant Emperor		LC
• <i>A. imperator</i> Leach, 1815	Blue Emperor		LC
• <i>A. speratus</i> Hagen, 1867	Orange Emperor		LC
• <i>A. tristis</i> Hagen, 1867	Black Emperor		LC
• <i>Gynacantha manderica</i> Grünberg, 1902	Little Duskhawker		LC
• <i>G. usambarica</i> Sjöstedt, 1909	Eastern Duskhawker	Usambara Duskhawker	VU
• <i>G. villosa</i> Grünberg, 1902	Brown Duskhawker		VU
GOMPHIDAE	CLUBTAILS		
• <i>Ictinogomphus ferox</i> (Rambur, 1842)	Common Tigertail		LC
• <i>Gomphidia quarrei</i> (Schouteden, 1934)	Southern Fingertail	Quarre's Fingertail	VU
• <i>Lestinogomphus angustus</i> Martin, 1911	Spined Fairytail		NT
• <i>Notogomphus praetorius</i> (Sélys, 1878)	Yellowjack		LC
• <i>Neurogomphus zambeziensis</i> Cammaerts, 2004	Zambezi Siphontail		VU
• <i>Phyllogomphus selysi</i> Schouteden, 1933	Bold Leaf-tail		LC
• <i>Crenigomphus cornutus</i> Pinhey, 1956	Horned Talontail		VU
• <i>C. hartmanni</i> (Förster, 1898)	Clubbed Talontail		LC
• <i>Ceratogomphus pictus</i> Sélys, 1854	Common Thorntail		LC
• <i>C. triceraticus</i> Balinsky, 1963	Cape Thorntail		NT
• <i>Paragomphus cognatus</i> (Rambur, 1842)	Rock Hooktail		LC
• <i>P. elpidius</i> (Ris, 1921)	Corkscrew Hooktail		LC
• <i>P. genei</i> (Sélys, 1841)	Common Hooktail	Green Hooktail	LC
• <i>P. magnus</i> (Fraser 1952)	Great Hooktail		LC
• <i>P. sabicus</i> Pinhey, 1950	Flapper Hooktail	Sabi Hooktail	LC
• <i>Onychogomphus supinus</i> Sélys, 1854	Lined Claspertail	Gorge Claspertail	LC
CORDULIIDAE	EMERALDS		
• <i>Syncordulia gracilis</i> (Burmeister, 1839)	Yellow Presba		VU
• <i>S. legator</i> Dijkstra, Samways & Simaika, 2007	Gilded Presba		VU
• <i>S. serendipator</i> Dijkstra, Samways & Simaika, 2007	Rustic Presba		VU
• <i>S. venator</i> (Barnard, 1933)	Mahogany Presba		VU
• <i>Hemicordulia africana</i> Dijkstra, 2007	African Emerald		NT
• <i>Phyllomacromia contumax</i> Sélys, 1879	Two-banded Cruiser		LC
• <i>P. monoceros</i> (Förster, 1906)	Sable Cruiser	Unicorn Cruiser	NT
• <i>P. picta</i> (Hagen in Sélys, 1871)	Darting Cruiser		LC

National RL Criteria	Global RL Category	Global RL Criteria	Distribution Sub-index	Threat Status Sub-index	Sensitivity Sub-index	Species DBI
	LC		2	0	2	4
	LC		2	0	3	5
B1ab(ii,iii) + 2ab(ii,iii)	LC		2	1	2	5
	LC		2	0	2	4
	LC		1	0	1	2
	LC		0	0	1	1
	LC		0	0	2	2
	LC		2	0	2	4
	LC		1	0	3	4
	LC		2	1	3	6
B2ab(ii,iii,iv)	LC		2	1	3	6
	LC		1	0	1	2
B1ab(i,ii,iii,iv)	LC		2	1	3	6
	LC		2	1	2	5
	LC		1	0	3	4
B1ab(i,ii,iii,iv)	LC		2	1	3	6
	LC		2	0	2	4
B1ab(i,ii,iii,iv)	LC		2	1	2	5
	LC		1	0	2	3
	LC		0	0	2	2
	NT		3	1	3	7
	LC		0	0	1	1
	LC		2	0	2	4
	LC		1	0	2	3
	LC		2	0	2	4
	LC		2	0	2	4
	LC		2	0	3	5
B2ab(i,ii,iii), D2	VU	B2ab(i,ii,iii), D2	1	2	3	6
B2ab(i,ii,iii), D2	VU	B2ab(i,ii,iii), D2	3	2	3	8
B2ab(i,ii,iii), D2	VU	B2ab(i,ii,iii), D2	3	2	3	8
B2ab(i,ii,iii), D2	VU	B2ab(i,ii,iii), D2	3	2	2	7
	LC		2	1	2	5
	LC		1	0	1	2
	LC		2	1	2	5
	LC		1	0	1	2

Table 3.—Species with their national and global Red List (RL) categories and criteria. SThe RL criteria are used to determine species' categories and are described in detail on www.iucnredlist.org. Also given are all the sub-indices for each species, and their totals, i.e. the species DBI (cont.)

ANISOPTERA	DRAGONFLIES	Alternative names	National RL Category
LIBELLULIDAE	SKIMMERS		
• <i>Tetrathemis polleni</i> (Sélys, 1869)	Black-splashed Elf		LC
• <i>Notiothemis jonesi</i> Ris, 1919	Eastern Forestwatcher	Jones' Forestwatcher	LC
• <i>Orthetrum abbotti</i> Calvert, 1892	Little Skimmer		LC
• <i>O. brachiale</i> (Palisot de Beauvois, 1817)	Tough Skimmer		LC
• <i>O. cafferum</i> (Burmeister, 1839)	Two-striped Skimmer		LC
• <i>O. chrysostigma</i> (Burmeister, 1839)	Epaulet Skimmer		LC
• <i>O. guineense</i> Ris, 1910	Guinea Skimmer		LC
• <i>O. hintzi</i> Schmidt, 1951	Dark-shouldered Skimmer	Hintz's Skimmer	LC
• <i>O. icteromelas</i> Ris, 1910	Spectacled Skimmer		LC
• <i>O. julia julia</i> Kirby, 1900	Julia Skimmer (northern form)		LC
• <i>O. julia capicola</i>	Julia Skimmer (Cape form)		LC
• <i>O. machadoi</i> Longfield, 1955	Highland Skimmer	Machado's Skimmer	LC
• <i>O. monardi</i> Schmidt, 1951	Woodland Skimmer		LC
• <i>O. robustum</i> Balinsky, 1965	Robust Skimmer		NT
• <i>O. rubens</i> Barnard, 1937	Elusive Skimmer		EN
• <i>O. stemmale</i> (Burmeister, 1839)	Bold Skimmer	Strong Skimmer	LC
• <i>O. trinacria</i> (Sélys, 1841)	Long Skimmer		LC
• <i>Nesciothemis farinosa</i> (Förster, 1898)	Eastern Blacktail	Black-tailed Skimmer	LC
• <i>Palpopleura deceptor</i> (Calvert, 1899)	Deceptive Widow		LC
• <i>P. jucunda jucunda</i> Rambur, 1842	Yellow-veined Widow		LC
• <i>P. lucia</i> (Drury, 1773)	Lucia Widow		LC
• <i>P. portia</i> (Drury, 1773)	Portia Widow		LC
• <i>Chalcostephia flavifrons</i> Kirby, 1889	Inspector		LC
• <i>Hemistigma albipunctum</i> (Rambur, 1842)	African Piedspot	Pied-spot	LC
• <i>Acisoma inflatum</i> Sélys, 1882/ <i>A. variegatum</i> Kirby 1898	Stout Pintail/Slender Pintail	Grizzled Pintail	LC
• <i>Diplacodes lefebvrii</i> (Rambur, 1842)	Black Percher		LC
• <i>D. luminans</i> (Karsch, 1893)	Barbet Percher		LC
• <i>D. pumila</i> Dijkstra, 2006	Dwarf Percher	Little Percher	EN
• <i>Crocothemis divisa</i> Karsch, 1898	Rock Scarlet	Divisa Scarlet	LC
• <i>C. erythraea</i> (Brullé, 1832)	Broad Scarlet		LC
• <i>C. sanguinolenta</i> (Burmeister, 1839)	Little Scarlet		LC
• <i>Bradinopyga cornuta</i> Ris, 1911	Horned Rockdweller		LC
• <i>Brachythemis lacustris</i> (Kirby, 1889)	Red Groundling		LC
• <i>B. leucosticta</i> (Burmeister, 1839)	Banded Groundling		LC
• <i>Sympetrum fonscolombii</i> (Sélys, 1840)	Nomad		LC
• <i>Trithemis aconita</i> Lieftinck, 1969	Halfshade Dropwing	Monkshood Dropwing	LC
• <i>T. annulata</i> (Palisot de Beauvois, 1807)	Violet Dropwing		LC
• <i>T. arteriosa</i> (Burmeister, 1839)	Red-veined Dropwing		LC

National RL Criteria	Global RL Category	Global RL Criteria	Distribution Sub-index	Threat Status Sub-index	Sensitivity Sub-index	Species DBI
	LC		2	0	1	3
	LC		2	0	1	3
	LC		1	0	1	2
	LC		2	0	0	2
	LC		1	0	2	3
	LC		1	0	1	2
	LC		2	0	2	4
	LC		1	0	2	3
	LC		1	0	1	2
	LC		1	0	0	1
	LC		3	0	0	3
	LC		2	0	1	3
	LC		2	0	2	4
	LC		2	1	2	5
B2ab(i,ii,iii), D2	EN	B2ab(i,ii,iii), D2	3	3	3	9
	LC		2	0	2	4
	LC		1	0	0	1
	LC		0	0	1	1
	LC		2	0	2	4
	LC		1	0	1	2
	LC		1	0	1	2
	LC		1	0	1	2
	LC		2	0	2	4
	LC		1	0	2	3
	LC		1	0	1	2
	LC		1	0	2	3
	LC		1	0	2	3
B1ab(i,ii,iii,iv) + 2ab(i,ii,iii,iv)	LC		2	2	3	7
	LC		2	0	0	2
	LC		0	0	0	0
	LC		1	0	2	3
	LC		2	0	3	5
	LC		1	0	2	3
	LC		1	0	1	2
	LC		0	0	0	0
	LC		2	0	2	4
	LC		1	0	0	1
	LC		0	0	0	0

Table 3.—Species with their national and global Red List (RL) categories and criteria. The RL criteria are used to determine species’ categories and are described in detail on www.iucnredlist.org. Also given are all the sub-indices for each species, and their totals, i.e. the species DBI (cont.)

ANISOPTERA	DRAGONFLIES	Alternative names	National RL Category
LIBELLULIDAE (cont.)	SKIMMERS		
• <i>T. donaldsoni</i> (Calvert, 1899)	Denim Dropwing		LC
• <i>T. dorsalis</i> (Rambur, 1842)	Highland Dropwing	Round-hook Dropwing	LC
• <i>T. furva</i> Karsch, 1899	Navy Dropwing		LC
• <i>T. hecate</i> Ris, 1912	Silhouette Dropwing		LC
• <i>T. kirbyi</i> Sélys, 1891	Orange-winged Dropwing	Kirby’s Dropwing	LC
• <i>T. pluvialis</i> Förster, 1906	Russet Dropwing	Riffle-and-Reed Dropwing	LC
• <i>T. stictica</i> (Burmeister, 1839)	Jaunty Dropwing		LC
• <i>T. weneri</i> Ris, 1912	Elegant Dropwing		NT
• <i>Zygonyx natalensis</i> (Martin, 1900)	Blue Cascader	Scuffed Cascader	LC
• <i>Z. torridus</i> (Kirby, 1889)	Ringed Cascader		LC
• <i>Zygonoides fuelleborni</i> Grünberg, 1902	Southern Riverking	Robust Riverking	LC
• <i>Olpogastra lugubris</i> Karsch, 1895	Bottletail	Slender Bottletail	NT
• <i>Rhyothemis semihyalina</i> (Desjardins, 1832)	Phantom Flutterer		LC
• <i>Zygomma atlanticum</i> Sélys, 1889	Smoky Duskdarter		LC
• <i>Parazygomma flavicans</i> (Martin, 1908)	Banded Duskdarter		VU
• <i>Tholymis tillarga</i> (Fabricius, 1798)	Twister		LC
• <i>Pantala flavescens</i> (Fabricius, 1798)	Pantala	Wandering Glider	LC
• <i>Tramea basilaris</i> (Palisot de Beauvois, 1817)	Keyhole Glider		LC
• <i>T. limbata</i> (Desjardins, 1832)	Ferruginous Glider	Voyaging Glider	LC
• <i>Urothemis assignata</i> (Sélys, 1872)	Red Basker		LC
• <i>U. edwardsii</i> (Sélys, 1849)	Blue Basker		LC
• <i>U. luciana</i> Balinsky, 1961	St Lucia Basker		LC
• <i>Aethriamanta rezia</i> Kirby, 1889	Pygmy Basker		LC
• <i>Macrodiplax cora</i> (Kaup in Brauer, 1867)	Coastal Pennant	Cora’s Pennant	LC



Phyllomacromia contumax (Two-banded Cruiser)

National RL Criteria	Global RL Category	Global RL Criteria	Distribution Sub-index	Threat Status Sub-index	Sensitivity Sub-index	Species DBI
	LC		2	0	2	4
	LC		0	0	0	0
	LC		0	0	0	0
	LC		2	0	2	4
	LC		0	0	0	0
	LC		1	0	1	2
	LC		0	0	1	1
	LC		2	0	3	5
	LC		0	0	2	2
	LC		1	0	1	2
	LC		2	0	2	4
	LC		2	1	1	4
	LC		1	0	0	1
	LC		2	1	3	6
B2ab(ii,iii); D2	LC		2	0	3	5
	LC		2	0	1	3
	LC		0	0	0	0
	LC		0	0	0	0
	LC		0	0	0	0
	LC		1	0	2	3
	LC		1	0	1	2
	LC		3	0	2	5
	LC		2	0	2	4
	LC		2	0	2	4



especially the mating apparatus. In such cases, the specimen can be netted, examined, identified, and then released – assuming that this activity is allowed.

5. Visit the chosen site and make some preliminary observations. Spend some time watching the dragonflies through the close-focus binoculars to familiarise yourself with their colour patterns, where they perch and how they behave. It is essentially the same exercise as bird-watching, simply enjoy doing it! Collect some individuals and keep a reference collection. You will not need to do this at every site in future, as many species will be the same. You will only collect new individuals that are new species to you. Once you are familiar with the species, you will probably not need to do any collecting, except for occasional individuals with which you are unfamiliar, and which may be new to your collection. Also photograph the dragonflies that you see, as this gives you a record of what the live insects look like. This is important, for example, for eye colour, which always fades to a dull brown upon death. For photography, you will need a macro lens, ideally 100 or 200 mm. Some bird-watchers who photograph insects put a small digital camera on the end of a telescope to great effect for a clear image of an individual some metres away.
6. At a chosen locality, start to select your sites according to your conservation or assessment goal (see point 1). Plan to visit any one site an absolute minimum of two times during the flight season (late October to mid-April). These visits need not be evenly spaced, e.g. they could all be done during January and February. In the Western Cape there is an early season species group and a late season species group with a drop in dragonfly numbers from December to early January. In this area we recommend that you make an absolute minimum total of two visits: one in the period November to early December, and another one in the period February to April. The aim of these visits is to record what is termed the 'core resident species', those species that live there permanently. We mention two visits here because financially it may not be possible to undertake more visits. However, it will be better if more than two visits can be made, as this will increase the chances of recording all species. Research has established that three or more visits with careful observations lead to determination of the majority of breeding species present and with the core resident species being recorded.

If you return to any one site, over several months or even years, you will record occasional new species. Some thoroughly researched sites have revealed new species even after ten years of ob-

servation. There are three reasons for this. Firstly, it can be a chance occurrence. The species may occur in the general area but your site happens to be marginal for it. Nevertheless, occasional individuals do wander, often in search of new habitat, and this may coincide with your observation period. Secondly, sites often change over time, either because the weather cycles are taking effect, drying or inundating sites, or because of physical factors like siltation, or because the vegetation is undergoing succession. These factors are often all interlinked. Thirdly, some species are distinct migrants and your recording of them depends on your recording period coinciding with their general appearance in the area. The well-known migrants in South Africa are the Nomad (*Sympetrum fonscolombii*), the Vagrant Emperor (*Anax ephippiger*), Pantala (*Pantala flavescens*) and the Gliders (*Tramea limbata* and *T. basilaris*). Others wander to some extent, but most individuals stay close to their natal pond or stream, while few move greater distances, with only the occasional individuals moving several kilometres. These occasional records will make little difference to the overall site DBI scores, especially as the species concerned are usually those with low individual DBI scores.

7. Choose a sunny, still day to visit your site. Upon arrival at your site, define it as about 100 m of bankside and include the various water speeds from still to very fast (including waterfalls) for streams and rivers. The 100 m stretch need not be contiguous, and could, for example, be series of 10 m lengths. Ponds, dams, lakes, marshes, and other still water bodies, even if near a stream or river, must be considered separately from the running water even though running water may have its own still reaches – these are included in the running water assessment. Remember, that it is not exact distances that are important, but rather to record the species present at the site.

The aim is to select your site so that you include as many microhabitats (biotopes) as possible. For example, at a rocky stream include a waterfall, a riffle, a glide, a deposition pool, outer and inner bends, grassy, reedy, sunny and shady areas. This is not as complicated as it may sound, especially when you recall that the aim is to record all the species present at one site. You will now spend up to about 30 minutes observing at this site on any one occasion. Neither the actual distance, nor the observation time is as significant as making sure that you have included all possible microhabitats.

8. Once you have decided on the composition of your survey area with its various microhabitats, carefully and quietly walk along, scanning the area both with your eyes and binoculars. Record

all species present. This may be done on prepared data sheets with a checklist of species.

It is often worthwhile doing some supplementary sampling at dusk in the northern, warmer regions. Some species can be seen wheeling adjacent to trees catching midges at dusk. These individuals normally need to be netted for identification. It is also rewarding to search in the dark recesses of swamp vegetation for crepuscular species that rest during the day, camouflaged among tangles of creepers and ferns in hot, humid areas. This is especially so for the Duskhawkers (*Gynacantha* species) and the Evening Hawker (*Anaciaeschna triangulifera*). After initially disturbing the vegetation you may have to wait a few minutes to allow the dragonflies to settle again, if you want to collect a specimen. This type of disturbance is not a major concern, as this sometimes reveals species that would otherwise have been missed. This is particularly so in the case of the Wisps (*Agriocnemis* species) which are tiny and cryptic, and need searching for low among the grasses and sedges beside still water bodies or still reaches of rivers.

9. When you revisit a site, record all the species again. These additional visits are intended for recording species that were missed on previous occasions. Again, it must be emphasised that the aim is to record the total number of species present at a site, and not which species were recorded when. However, this information may be used for other purposes if you wish.
10. Once you are confident that you have recorded all the core resident species, you effectively have two or more sets of data. You also have three estimates:
 - a. Number of species present at a site (i.e. its species richness);
 - b. Names of those species, indicating taxonomic diversity and relatedness; and
 - c. The total DBI score (i.e. the total of all the species' DBI scores for that site).

The total DBI score is the total of all the species' DBI scores. In this book, the individual DBI scores are indicated alongside each species description. All three estimates can change from one assessment period to the next. Species richness may or may not change. A lack of change does not necessarily mean that the dragonfly profile has not changed. It may be that one species has disappeared and another one has established itself at the site. This also applies to the DBI/Site, but is less likely when species with high DBI values are involved. For example, the loss of just two Cape endemics

from a stream will have a major effect on the DBI/Site score, even if they are replaced by two common, widespread species, each with low DBI species scores. This is why it is essential to record all the species present when doing a new assessment.

11. How many sites should you choose to sample? Firstly, for rapid assessments you can compare one site with another. However, if you want to compare localities you need to consider the concept of replication. Each of your sites at any one locality can be considered a replicate. A group of replicates (i.e. sites) at the same locality are used for comparison, either over time using the same sites, or with an equivalent number of sites at another locality. A locality can be a particularly large dam or lake, a cluster of small dams, or a stretch (e.g. 2 km long) of river where conditions are more or less the same, both in the water and on the bank.

The aim is to have enough representative sites (replicates) for statistical analysis if needed. We recommend a minimum of five sites at any one locality, but if resources and availability of sites allow it, and you require statistical analysis for comparison (over time or space), then use at least ten and up to 20 sites at any one locality. It is worth remembering that the more sites you have, the more robust your statistics will be, with more reliable comparisons as a result. For most practical purposes you will not need so many sites, but for a publishable research project you will.

12. When you have a before-and-after test at the same locality (e.g. assessing the location before and after removal of alien invasive trees) it is best to make sure that you have many replicates, at least ten. Ideally, do at least three assessments before removal of the trees and then at appropriate time intervals afterwards. These could be done annually or first year, second year, fifth year etc. An improvement in species richness is represented by a Species Recovery Score (SRS) and can be expressed as a percentage recovery value. For example, a change from 10 species to 20 species would have an SRS of 200%, as there are twice as many (200%) species. The improvement in the total DBI (i.e. the locality DBI in this case) is termed the Dragonfly Recovery Score (DRS) and is also expressed as a percentage. For example, a change from a total DBI of 10 to 40 (a substantial recovery) would have a DRS of 400%, which is four times what it was originally. In situations where there is a deterioration in freshwater conditions and there is, for example, a drop in the number of species by half, or a drop in the total DBI by half, then both the SRS and DBI would be 50% in these examples.

Using the Dragonfly Biotic Index in practice

Below are some remarks on using the DBI.

1. Clearly articulate the ecological or conservation question you wish to answer, decide on the number of sites per locality, and the number of localities

- a. You may aim, for example, to compare two streams for their relative species richness and ecological integrity using the DBI. Each stream is then a locality, and you will choose sites at each locality. The number of sites will depend on the extent of the study. If it is a general assessment, then 2–3 sites per locality may be adequate. If the aim is to undertake a thorough scientific study, then for robust statistics you would need 10+ sites per locality. Furthermore, if you are in the Western or southern Cape, you will need to sample in both spring and autumn; if you are further north, you will only need to sample once any time from November to April. These are the absolute minimum number of visits, and the more visits that can be made, the better, as the results are then likely to be more robust.
- b. You may aim to compare large ponds or dams to determine which ones are the most significant in terms of dragonfly diversity. At each pond (i.e. at each locality) you select 2–3 sites for a general study or an assessment if the ponds are large enough. If not, you can always designate the ponds (or small groups of ponds) as individual assessment sites.
- c. You may want to determine the extent to which a stream has been disturbed. The disturbance may be from invasive alien trees, alien fish, over-abstraction, or a combination of these. You will have to select several localities, or in this case, streams or reaches of the stream. Ideally you need to select sites at several undisturbed and disturbed localities. You would then do your sampling of 2–3 sites per locality (at each stream or reach of stream). For a thorough scientific study, you would need 10+ sites per locality and 5+ localities both in undisturbed and in disturbed areas. This often requires great planning and may not even be feasible in your area. In the case of alien fish, you would need fish-invaded and fish-free streams for comparison. Where you wish to do a more general survey, you may be able to gain considerable insight by simply making initial surveys, for example using 2–3 sites and one disturbed and one undisturbed locality (stream or reach of stream). You can always add other localities to this survey as you go along, and therefore build up a composite picture of dragonfly diversity in your focal area.
- d. Perhaps your aim is to determine the success of a restoration project, such as removal of invasive alien trees. This is a temporal study as opposed to the spatial studies mentioned above. Nevertheless, you will need to spatially replicate as much as you can. At each locality (e.g. stream or reach of stream) you will sample 5+ sites where the alien trees have invaded the river. You may well do this at several localities. Once the trees have been removed, you can then undertake DBI sampling, for example on an annual basis, to record how well the stream is recovering. While doing this, you should also record the change in the riparian vegetation using standard botanical techniques (see Samways et al. 2010). The DBI after the removal of alien trees can be divided by the DBI before the removal of the alien trees and multiplied by 100 for a Dragonfly Recovery Score (DRS) as a percentage. At Disa Stream, Table Mountain, the recovery was truly remarkable: with only five widespread species present before the alien pine trees were removed, the total DBI for the locality (the stream) was 8. Within a few years after removal of the aliens, there were 11 species (including the return of several significant endemic species) amounting to a total DBI of 48. This meant a DRS of 600%. Further north the figures are generally not as high, as the recovery does not usually involve the return of high-scoring endemic species, with DRS scores of 110–300% being more typical.

2. Recording the species at your sites and localities

The goal is always to record all the species present at your focal locality. You can keep your species lists separate for each of the sites at your focal localities – this is to enable you to do statistics on your data. However, for general assessments or for monitoring over time, the most important data element is the species list. With a species list, using the DBI scores given in the species descriptions, you can calculate (by adding) the total DBI/Stream. For statistical purposes, and as long as you have enough localities, you can always compare localities with a mean DBI/Stream with an indication of variation about that mean (e.g. standard error).

An important point is to aim to record all the named species present. This means that identification must be absolutely certain. If there is any doubt about the identity of a specimen, leave it out. The only near-impossible pair of species to tell apart in the field is the Navy and Highland Dropwings, but as they rarely occur together and have the same DBI score, the confusion is not serious. However, it makes sense to capture a few specimens to check the shape of the genitalia to confirm their identities. If you only see the female of the species and never a male, and you are certain of the identity, record the species as present. Similarly, if you record specimens away from but near the water, include them. Always, maintain a voucher collection of a few individuals that you have collected (assuming that you have an appropriate collecting permit) and photograph any uncertain specimens.

3. Entering data

Data may be entered electronically directly into a hand-held data unit, or on prepared clipboard sheets for later electronic entry. To avoid loss of the data, should something happen to the clipboard sheet, simply take a photograph of the filled-in sheet. The latter is preferable as there is always a hard copy, no risk of batteries running low, or field damage. The easiest is to tick the species off a complete species list as they are recorded. It is not necessary to record abundance, unless it's required for detailed studies. To make the process easier where you are working in a specific geographical area, you may prefer to have a list which is a subset of the total. You can do this by scanning the maps given in the species descriptions, noting those that are likely to occur in your area, or alternatively excluding those likely not to occur. Where a surprise recording occurs, a species name can always be added to the bottom of the list.

4. Cross-correlating with the South African Scoring System (SASS)

The total SASS score for a stream will be roughly equivalent to that of the DBI. Similarly, as SASS changes, so will the DBI. This however, does not necessarily mean that they correlate in a strictly linear fashion spatially or over time. The Average Score Per Taxon (ASPT) of SASS is equivalent to taking the total DBI score and dividing it by the number of species to give the DBI/Site score (see also p. 15). If you wish, you can always undertake both SASS and DBI assessments together, although this is a considerable amount of work. These two indices can be used in a complementary way. Both the DBI and SASS reflect in-water conditions. The DBI does so because

that is where the larvae develop and emerge from and, more importantly, where the female is selecting microhabitats for oviposition. On this last point, the DBI is also an indicator of riparian conditions because adult dragonflies are responding to local biotope conditions (i.e. vegetation structure and density).

For indices it is important to record characteristics and features of the sites. Which characteristics are selected for recording depend on the reasons for the studies. For example, are the indices being used to measure the impact of invasive alien trees, or the recovery of the water fauna after removal of those trees? Is the impact of a dam, a farm practice, or water abstraction being determined? Or is the impact of surrounding farming, forestry or mining activities being assessed? Are the sites being monitored over time (from one year to the next)? Examples of variables to include would be percentage canopy of alien trees over the edge of the stream, percentage shade cover at midday, stream flow, algae growth, water level fluctuation, bank damage (e.g. from cattle), alien fish levels, etc. You need to be sensible on the degree of accuracy, and usually categorical figures are the most practical to use. For example, percentage alien tree cover, algae infestation or silt levels to the nearest 10%. Stream flow may be the general flow speed in riffles and glides, but do note the presence of still areas (deposition pools), as these are important microhabitats for many dragonfly or other macroinvertebrate species. Width of riparian zone can also be very important. For example, this may be between stream edge and plantation or arable field. The point is to work through pertinent and valuable natural and/or anthropogenic environmental variables considering the aim of the assessment or management question being asked.

Methods and techniques for dragonfly recognition, assessment and conservation

Firstly, time must be invested in getting to know the species. This is not difficult or onerous. When observing a dragonfly for the first time, watch it for a while through the binoculars. Determine first of all whether it is a male or female. With damselflies this is fairly easy as the female has a slightly swollen tip to the abdomen. The male tends to have a more square-ended look, and the appendages on the tip of the abdomen are normally visible (Figure 3). In the case of true dragonflies it is easy in some species, but not all. This does not really matter as the dragonfly's sex does not change any of your results.

We are focusing on males because generally they are at the water, more conspicuous, more colourful (Figures 4 & 5), and easier to identify than the females. The characteristic feature of true dragonfly (Anisoptera) males is the protruding secondary genitalia on the underside of the front part of the abdomen (Figure 6). This is usually easy to see through the binoculars when the insect is viewed from the side. Generally too, the male has a slightly more swollen first section of the abdomen, just behind the hindwings (Figure 5). Overall females are more heavily built than males.

After watching the dragonfly in habitat, observe the colours, remembering that the individual that you are watching may be teneral (freshly emerged) or still too young to have its full adult colours. This is not too serious as the next individual of the same species may well be mature and easily identifiable. Observe exactly how the various colours are arranged and proportioned along the head, thorax, abdomen and wings. Closely observe where one colour ends and another starts. It is really worthwhile getting to know particularly the segments on the abdomen, at least roughly, as this certainly does help



Figure 3.—Male and female Swarthy Sprite showing the difference in the tips of the abdomens. In the male, it is more square-ended with the appendages protruding at the end, while in the female the ending is slightly bulbous, with an ovipositor just visible underneath the tip and the small cerci just visible at the end.

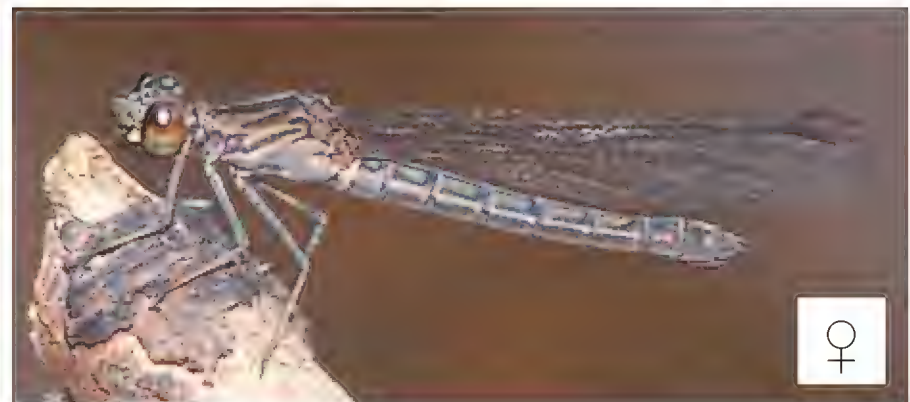


Figure 4.—Male and female Dancing Jewel illustrating the bright colours (for territorial advantage) of the male in comparison with the sombre colours (for camouflage) of the female.

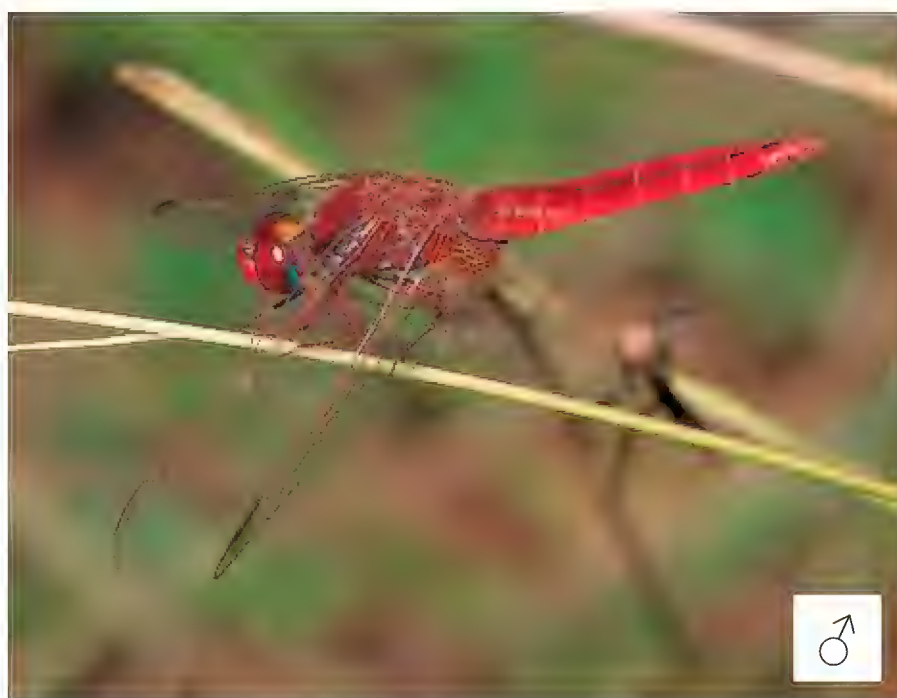


Figure 5.—Male and female Broad Scarlet showing the often typical differences in colour and shape in true dragonflies. The male is often much brighter (for territorial advantage) than the female, which is often brownish in colour (for camouflage). The dark/light patterns and the pterostigmas are often similar in both sexes. The male's body tends to be slightly swollen at the base of the abdomen, with the female tending to have a more overall robust appearance.

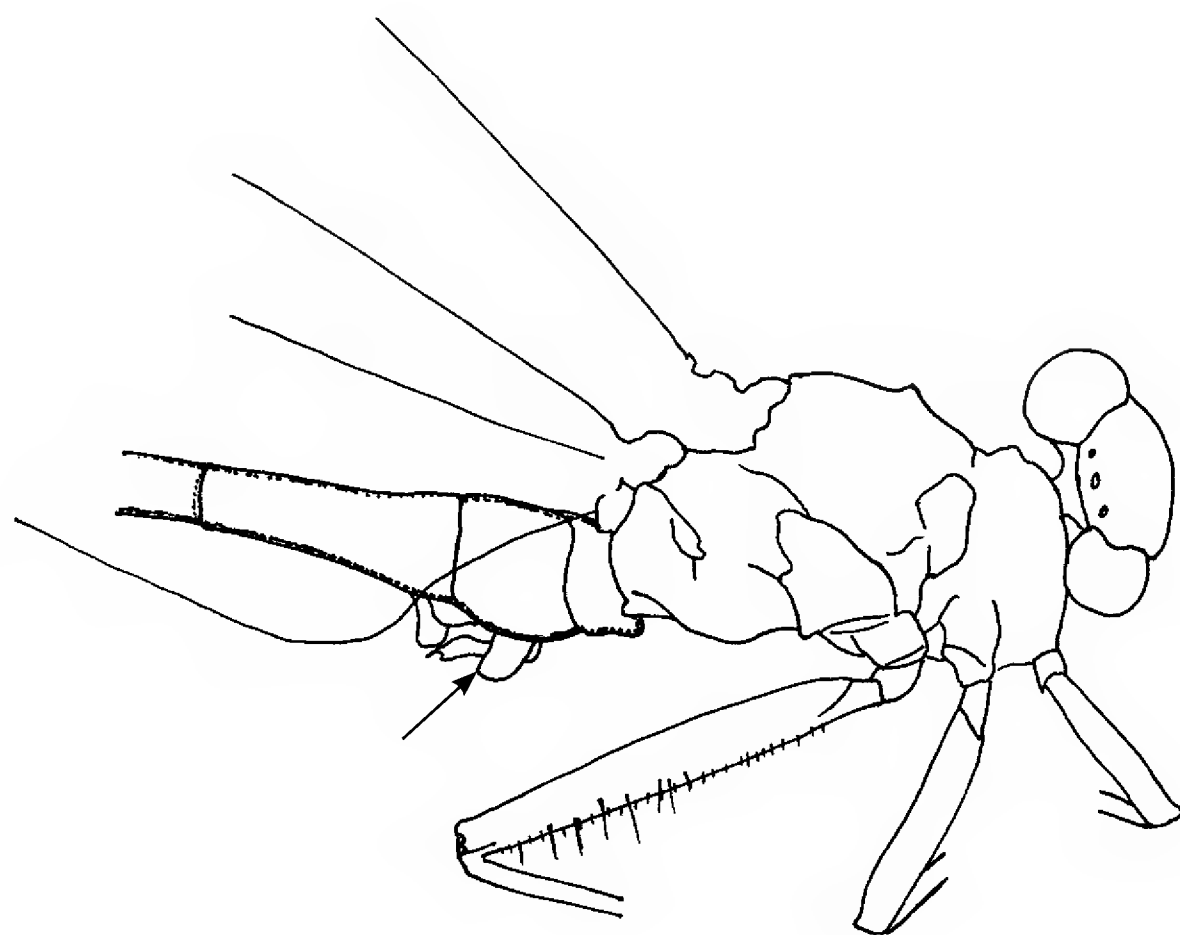


Figure 6.—The male true dragonfly is recognised by having secondary genitalia visible on the underside of the second segment of the abdomen, and which is absent in the female. The build of the male is also generally more slender than that of the female, although this is not always definitive.

with recognition. Then look carefully at the type of striping or mosaic on the thorax, carefully noting exactly where light or dark stripes occur. Check the wings for any colour patches and their extent, especially any orange at the base. Some species of true dragonfly are instantly recognisable by their large and characteristic black areas on the wings. Take note of the pterostigmas, although small, they can be very helpful in recognition. Also observe if there is any smokiness on the wings. Head colouring can be an essential aid in the recognition of many damselflies, so observe their face colouring closely. The same applies to the eyes, which also are important in assisting recognition (Figure 7).

After some practice, some dragonfly groups become instantly recognisable. Among the damselflies, only the Malachites (*Chlorolestes*) and Spreadwings (*Lestes*) rest with their wings open and spread wide. All the other damselflies sit with their wings closed along the top of the abdomen. All the Jewels (*Platycypha* and *Chlorocypha*) are small, stocky and colourful, with a distinct nose sticking out between the eyes. All the gomphids (Clubtails) have eyes that do not touch on top of the head, unlike any other group of true dragonflies. The Hawkers (*Pinheyschna* and *Zostereschna*) and Emperors (*Anax*) are all large with long abdomens and large wings. In turn, Pantala (*Pantala flavescens*) and the Gliders (*Tramea*) have pointed abdomens and elegant, pointed wings suited to their fast- and far-flying way of life. All these nuances become familiar and instantly recognisable after a while of carefully watching the different species.

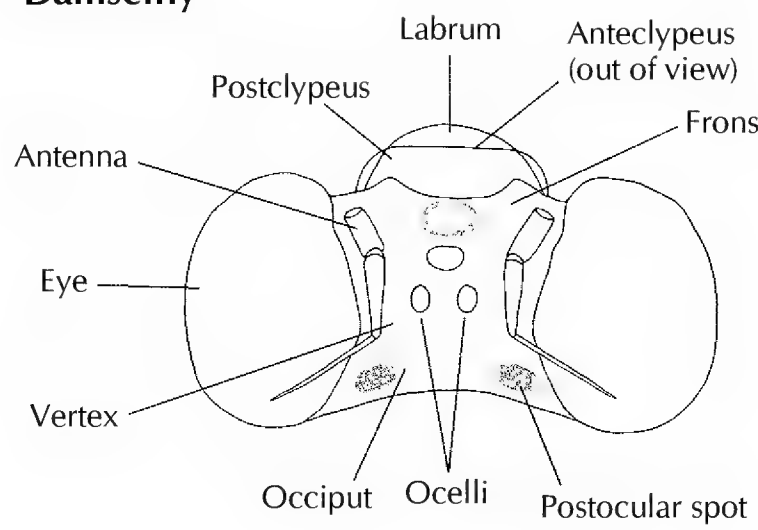
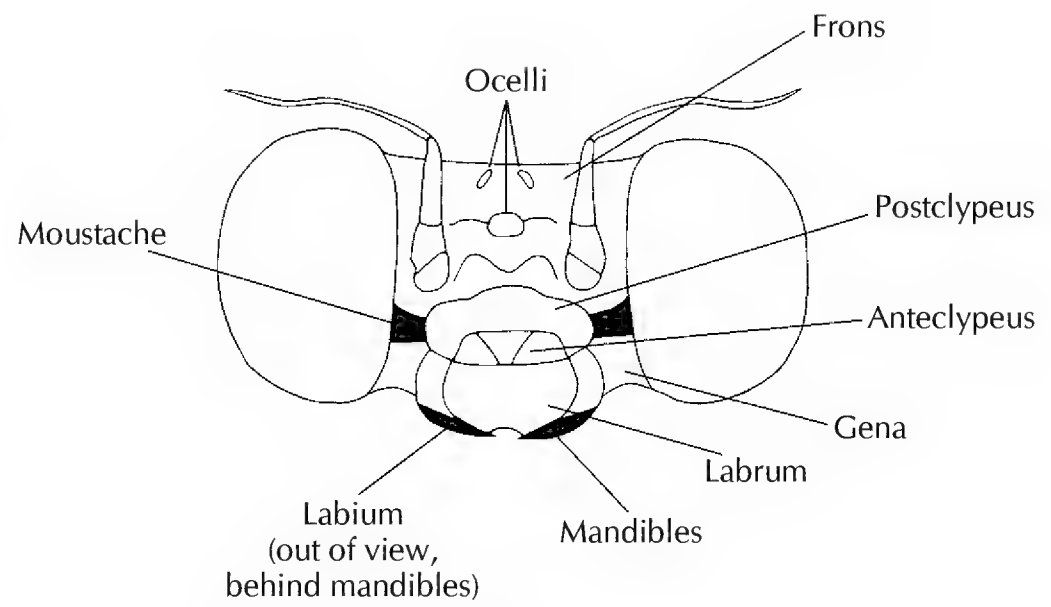
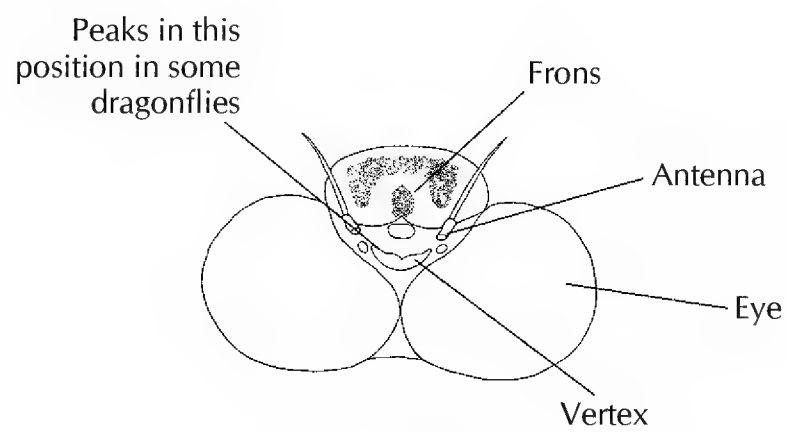
Exact habitat is often characteristic of certain species. After a little experience, recognition often goes hand in hand with where you observe the species and how it behaves. Some species like to perch on rocks, others on twigs. Some, like the Cascaders (*Zygonyx*), are

associated with riffles and waterfalls. Species have specific flying or sitting habits and rarely act ‘out of character’. This is quite different to geographical distribution which is only a rough guide, particularly for the widespread species, as new distribution records are always appearing. What this means is that it is always worth spending some time observing the habitat of a species and how it uses its habitat. With practice, one can often identify a species by observing its pose, behaviour, habitat and silhouette – much like becoming an expert bird-watcher.

With practice, most species are fairly easy to identify in the field with close-focus binoculars and without ever having to catch them. However, there are times when identification requires the specimen to be in hand. This enables close examination of the appendages in the case of damselflies, or the secondary genitalia and other important features in the case of the true dragonflies. All these definitive features are provided in the species descriptions as line drawings. Wing venation can also be helpful but this is really more for the dragonfly specialist; none of the South African species require wing venation details as essential features for definitive identification. Nevertheless, for those who may be interested in wing venation, an extensive key is given in *Dragonflies and Damselflies of South Africa* (Samways 2008).

Comparing the Dragonfly Biotic Index across geographical areas

Given the variation of rivers within South Africa, it is important that both their geographical and longitudinal variation be taken into account when in-

Damselfly**Top of head****Face****Dragonfly****Top of head**

Frons (this may have a figure eight mark, making it 'spectacled' in some true dragonflies)

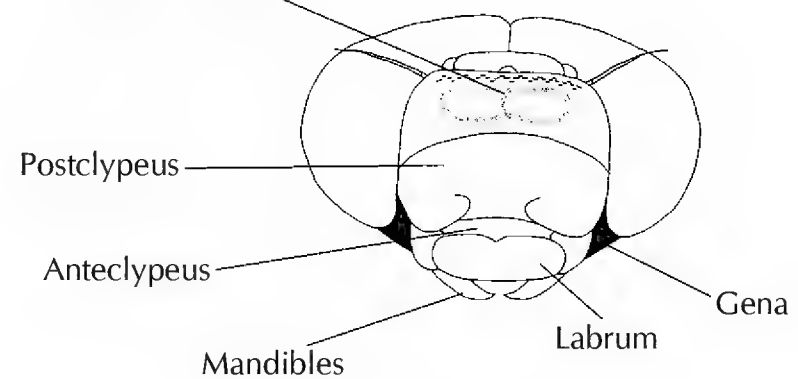
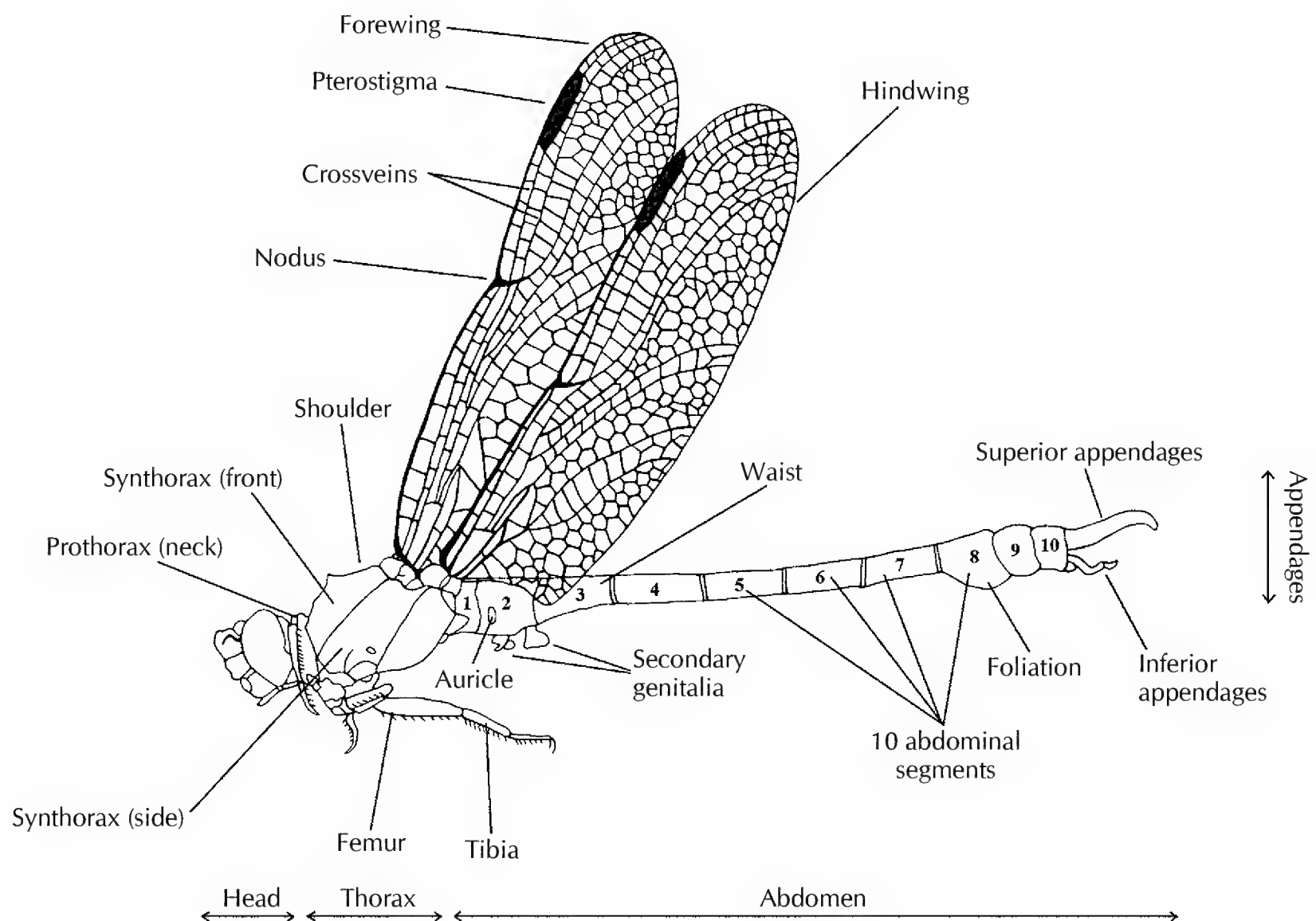
**Face**

Figure 7.—Damselfly and dragonfly characteristics.

Table 4: An example of the Habitat Condition Scale categories for interpretation in the south-Eastern coastal belt ecoregion (source: Simaika and Samways, 2012)

Habitat Condition Scale			
DBI	DBI/Site	Category	Description
> 46.5	> 5.4	HH	High biotope diversity; 0–25% canopy cover
37.9–46.5	4.4–5.4	MH	Moderate to high biotope diversity; 25–75% canopy cover
29.6–37.8	3.6–4.3	MM	Moderate biotope diversity; 75% canopy cover
26.1–29.5	2.8–3.5	ML	Moderate to low biotope diversity; 75–100% closed habitat
> 26.0	Variable	LL	Low biotope diversity; typically 100% closed canopy cover

terpreting the total DBI (total of all species scores) and DBI/Site (total DBI divided by the number of species) scores. The Habitat Condition Scale (HCS) is an interpretation guideline when using the DBI scheme, modified from the SASS5 approach of assigning ecological categories (Table 4). The HCS is a sensitive measure of the condition of a stream habitat, incorporating percentage canopy cover (shade) with biotope diversity (i.e. structural condition of the habitat). These metrics were included for South African assessments as the presence of invasive alien trees reduces the diversity and natural value of biotopes and amount of solar energy needed for dragonflies, particularly for endemic species. Shade from alien trees (in otherwise unshaded habitats) leads to a reduction in number of species. While some species need partial shade (e.g. Queen Mala-

chite [*Chlorolestes (Ecchlorolestes) nylephtha*] and White Malachite [*Chlorolestes umbratus*]) it must mostly be provided by indigenous trees and bushes.

To arrive at a geographically sensitive guideline for interpretation, the HCS categories must be calculated from a representative sample of sites (≥ 20 sites) surveyed in an ecoregion. The HCS categories are calculated as percentiles of the site scores in the ecoregion. The highest HCS category represents the top 10% of the highest scoring sites (i.e. the 90th percentile). The remaining categories are calculated as equal 22.5% differences between categories (i.e. the 67.5th, 45th and 22.5th percentile). The highest category represents the top 10% of site scores. This top 10% of sites are category HH (High High) which means that these sites have high biotope diversity and receive

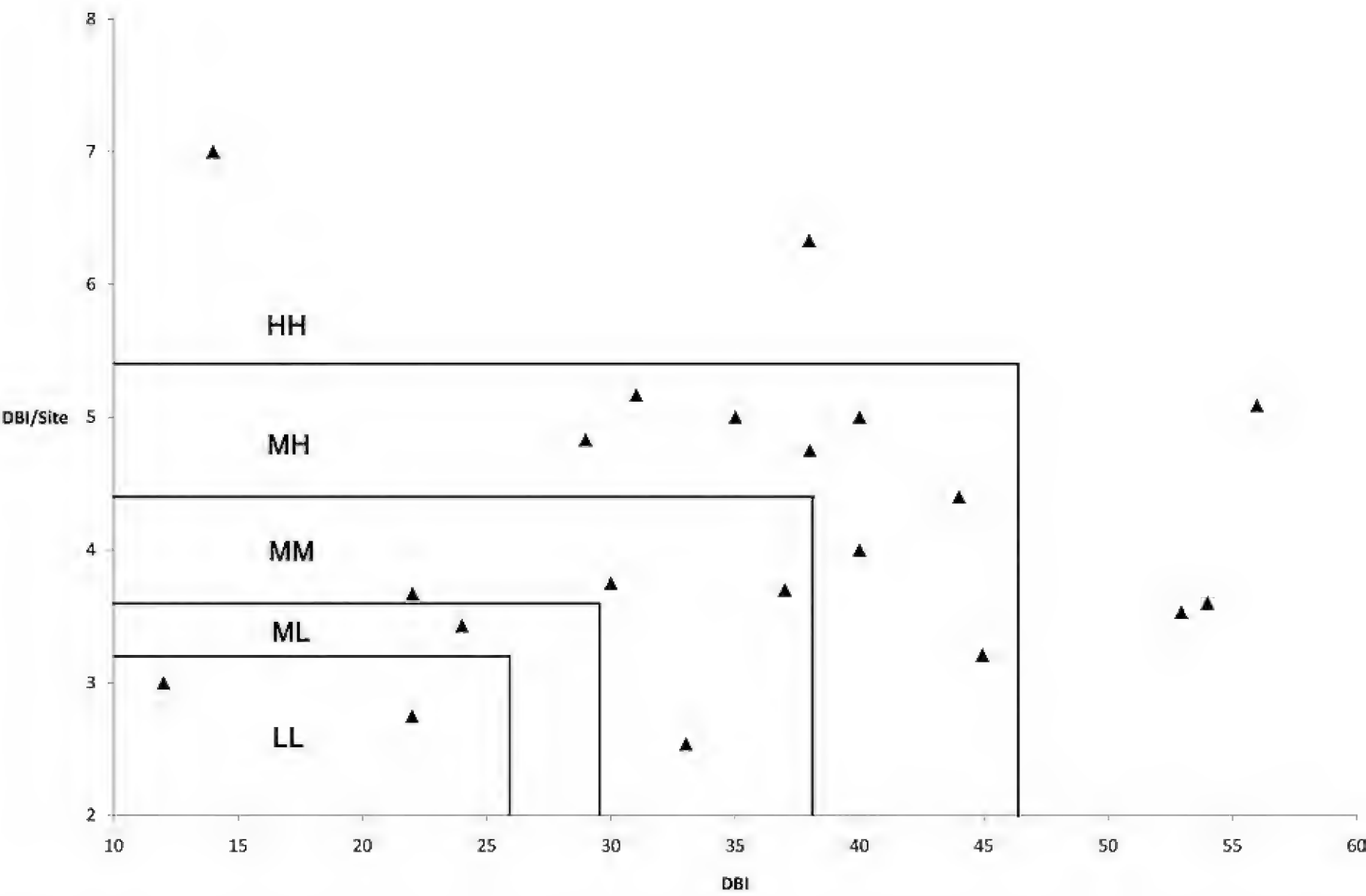


Figure 8.—Habitat Condition Scale (HCS) plot of DBI scores as a function of DBI/Site. This particular plot is for sites from the Southeastern Coastal Belt Ecoregion (from Simaika & Samways 2012).

high solar input (0–25% canopy cover). The remaining categories gradually decrease in ecological integrity from MH (= Moderately High biotope diversity, 25–75% canopy cover) to LL (= Low Low = low biotope diversity, fully closed canopy). All categories are shown with example ecoregion scores for the South-eastern Coastal Belt Ecoregion (Table 5).

Once the HCS categories have been calculated for an ecoregion, they can be mapped on a scatter plot. The horizontal x-axis is labelled 'DBI/Site'. The DBI/Site is calculated from the total DBI score (i.e. the total of all species DBIs at a sampled site divided by the number of species recorded at a site). The vertical y-axis is labelled 'total DBI score'. The DBI has now been plotted as a function of the DBI/Site score and the graph's lines indicate the boundaries separating categories (i.e. the percentages that were calculated from the sampled sites of the ecoregion earlier). The newly plotted graph should now look similar to Figure 8.

Plot the corresponding values from a newly sampled site on the graph, as shown in Figure 8 (represented as black triangles). These should fall into different categories, thus making interpretation of the habitat condition easy.

It is noteworthy that sites 16, 18 and 20 (see Table 4) are biologically impoverished. The riparian area of these sites is natural, but the sites are well-shaded (50–70% shade). However, site 19, which is 90% shaded only had two dragonfly species. These are endemics resulting in the unusually high DBI/Site score (7.00). Site 19 is a fully natural upstream habitat.

The practical application of the DBI demonstrates that with any biological indicator, special attention needs to be paid to where the method is applied, in order to interpret the results correctly. For example, in the subtropical northeast of South Africa, a high elevation meadow stream in perfect ecological condition will not be as species rich as a wide lowland stream of equal condition. The HCS can be calculated not only to specific ecoregions, but also to be sensitive to the longitudinal variation of streams (i.e.

Table 5: Interpretation of habitat condition based on the Habitat Condition Scale as modeled for the southeastern coastal belt of South Africa. Habitat category: abbreviations as described in the last table

Sites	Number of species	Total DBI	DBI/Site	Habitat category
1	11	55.99	5.09	HH
2	15	54	3.6	HH
3	15	52.95	3.53	HH
4	14	44.94	3.21	MH
5	10	44	4.4	MH
6	8	40	5	MH
7	10	40	4	MH
8	8	38	4.75	MH
9	6	37.98	6.33	HH
10	10	37	3.7	MM
11	7	35	5	MH
12	13	33.02	2.54	MM
13	6	31.02	5.17	MH
14	8	30	3.75	MM
15	6	28.98	4.83	MH
16	7	24.01	3.43	ML
17	6	22.02	3.67	MM
18	8	22	2.75	LL
19	2	14	7	HH
20	4	12	3	LL

along the length of the river from the highland to the lowland areas). This requires sampling a large enough number of sites to be able to significantly differentiate the upper from the lower stream segments. Finally, the HCS, with the special attention paid to canopy cover, applies specifically to South African habitat conditions where increasing shade from alien trees becomes a threat to dragonfly diversity. It is important to note, however, that elsewhere (particularly in the tropics) shade from forest trees is a required feature for some species.





SPECIES DESCRIPTIONS

In the following section, the mature adult male of each species is illustrated, and the diagnostic features are labelled. Final confirmation of a specimen’s identity will come from close examination of certain features, which are given as line drawings.

Species are listed in taxonomic sequence. In some cases bracketed vernacular names follow the recommended and internationally agreed upon names for species – these refer to older but well-established common names for the particular species and have been included for easy cross-referencing with older literature.

The maps refer to where species have been recorded to date. They should be only considered general guides to the species’ distributions, as new localities are always being discovered. However, for some lo-

calised species the maps provide a valuable indication of where the species are likely to occur. This may be used alongside the details on the ecoregions in which they occur.

Also included under each species, is its global Red List status and its specific Dragonfly Biotic Index (DBI) score. The statuses and values are included here for quick reference when identifying the species in the field.

In the opening lines of each of the species descriptions, the following body size (length) categories apply: minute (less than 21 mm long), very small (21.0–28.5 mm), small (29.0–36.5 mm), medium (37.0–44.5 mm), fairly large (45.0–52.5 mm), large (53.0–60.5 mm), very large (61.0–75.5 mm), enormous (longer than 75.5 mm).

For ease of cross-reference, the species descriptions follow the order of families (e.g. Calopterygidae) and groups (e.g. Demoiselles) as arranged in Samways’ (2008) comprehensive publication *Dragonflies and Damselflies of South Africa*.

Scientific name	Vernacular name	Groups
ZYGOPTERA	DAMSELFLIES	
Calopterygidae	Demoiselles	Demoiselles
Chlorocyphidae	Jewels	Jewels
Synlestidae	Malachites	Malachites
Lestidae	Spreadwings	Spreadwings
Platycnemididae	Featherlegs and Threadtails	Goldtail, Spesbona, Streamjack, Riverjack and Threadtails
Coenagrionidae	Pond damsels	Citrils, Sprites, Slims, Bluetail, Bluets and Wisps
ANISOPTERA	DRAGONFLIES	
Aeshnidae	Hawkers	Hawkers, Emperors and Duskhawkers
Gomphidae	Clubtails	Tigertail, Fingertail, Fairytail, Yellowjack, Siphontail, Leaftail, Talontails, Thorntails, Hooktails and Claspertail
Corduliidae	Emeralds	Presbas, Cruisers and Emerald
Libellulidae	Skimmers	Elf, Forestwatcher, Skimmers, Blacktail, Widows, Inspector, Piedspot, Pintails, Perchers, Scarlets, Rockdweller, Groundlings, Nomad, Dropwings, Cascaders, Riverking, Bottletail, Flutterer, Duskdarters, Twister, Pantala, Gliders, Baskers and Pennant

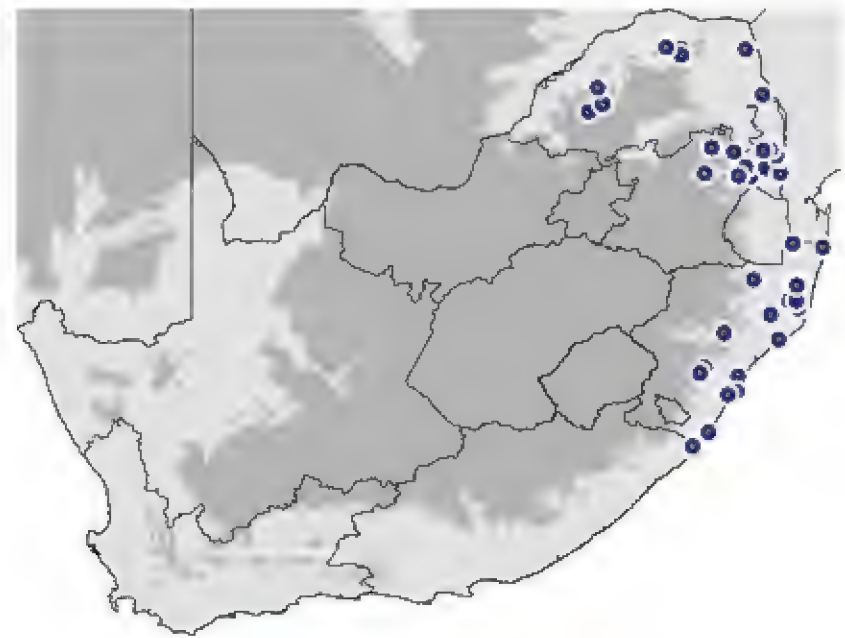


Glistening Demoiselle

Phaon iridipennis (Burmeister, 1839)

Appearance: The Glistening Demoiselle is South Africa's largest damselfly. It is unmistakable: very large, metallic, greenish brown, with large, rounded, glistening wings made up of dense and delicate netlike veins. Face buff with some brown and dark green markings. Eyes dark greyish brown above and light greyish brown below. Neck small, a blotchy mix of buff, brown and metallic green. Thorax light brown with alternating dark brown narrow stripes and metallic green wide stripes. Legs very long and conspicuous giving this damselfly the appearance of standing high up on its legs. Wings clear and iridescent when young, becoming slightly smoky with age. Iridescence striking, appearing silver, electric blue and lilac when wings are viewed from different angles. Pterostigmas, when present, tiny and brown. Abdomen long, slender, stick-like, straight, dark metallic green with narrow light brown rings at each joint; light brown below. Female very similar in colour and patterning to the male but slightly less metallic. Club-like end of abdomen very conspicuous.

Field notes: The Glistening Demoiselle occurs in savanna areas of the northern provinces and along the coastal plain of KwaZulu-Natal to the south of Durban; northwards to Central Africa, also present on Madagascar. It is commonly seen under bushes and trees, usually where there is a tangle of dead twigs and a deep leaf litter layer. It even occurs in deep forest as much as a kilometre from water. When seen next to water it is usually in association with small bushes and tall grasses at shallow, rocky, swift, savanna streams



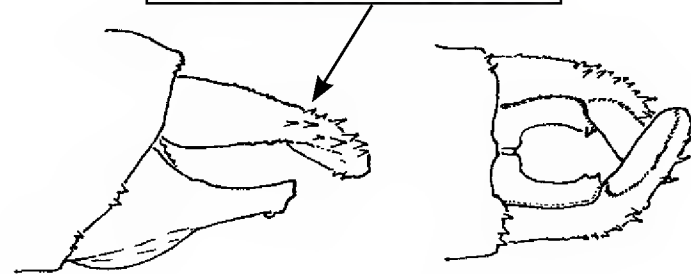
Threat

LC

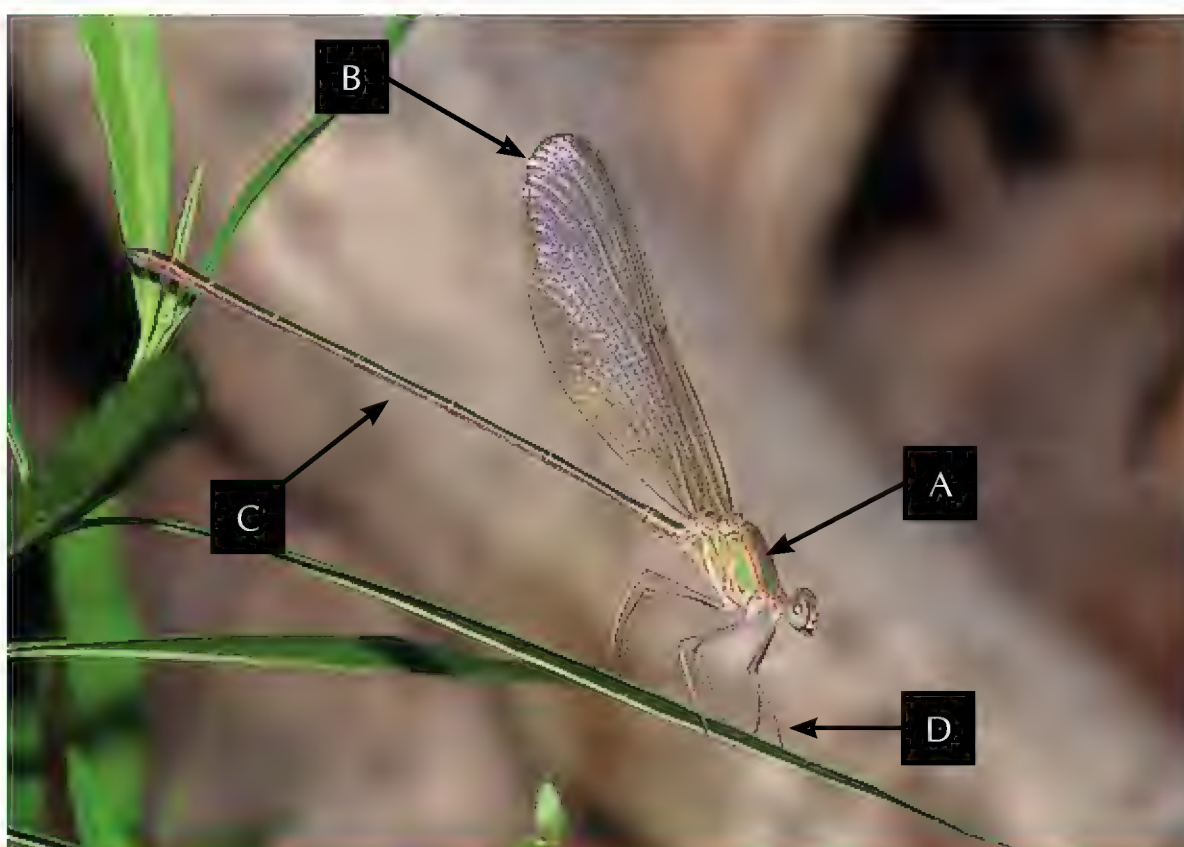
DBI

2

Spiny superior appendages



and small rivers. Spends most of the time resting, and is usually first seen when disturbed. Its strong, fluttering flight and strongly iridescent wings are striking. It normally rests on dead twigs with its very straight abdomen pointing slightly upwards. Main flight period is late November to early May, although occasional individuals may be seen from June to October.



- Very large size
- Net-like wings
- No pterostigmas, or only a hint of them
- A. Metallic green side stripes
- B. Shiny, iridescent wings
- C. Iridescent greenish brown body
- D. Very spiny legs

Body length: 69–70 mm

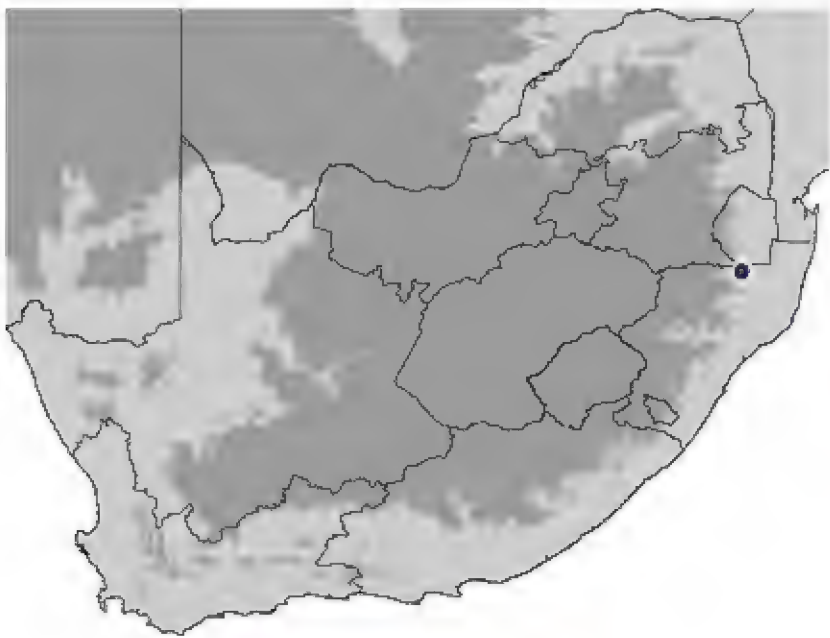
Hindwing length: 37–38 mm

Ruby Jewel

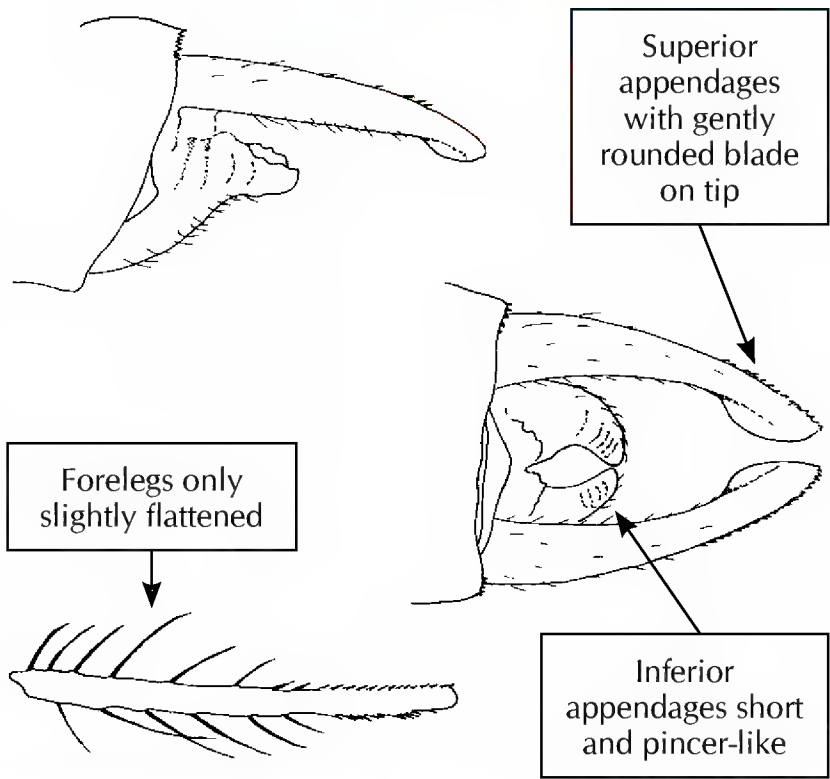
Chlorocypha consueta (Karsch, 1899)

Appearance: The Ruby Jewel is small, stocky and all red. Face rusty brown and black, although head above appears mostly blackish above, along with black eyes. Neck black with some indistinct brown margins. Thorax black overall with a series of brown lateral stripes. Wings clear with very black venation, becoming slightly smoky with age. Pterostigmas black. Abdomen stocky, overall appearance of being red, although first segment is black with orange spots; fine black rings at each segmental joint. Female's overall patterning similar to male's; brown replaces black, dull light brown replaces red.

Field notes: There is only one pre-1950 record of the Ruby Jewel near Itala in northern Kwa-Zulu-Natal. Despite intensive searches over the last few decades it has not been rediscovered, making it doubtful whether this is a South African resident. However it can be locally common further north to Central and Eastern Africa. The Ruby Jewel frequents clear, forested upland streams with sunflecks and an abundance of stones and debris in the water. It rests mostly on stones, twigs or overhanging grasses in or beside shallow, running water. It rarely takes flight and only does so for short sorties. On the wing from late November to early May.



Threat	DBI
LC	7



- Small and stocky
 - Red abdomen
 - Black and brown thorax
- A. Abdomen stocky and mostly all red
B. Black and brown side stripes

Body length: 30 mm

Hindwing length: 23 mm



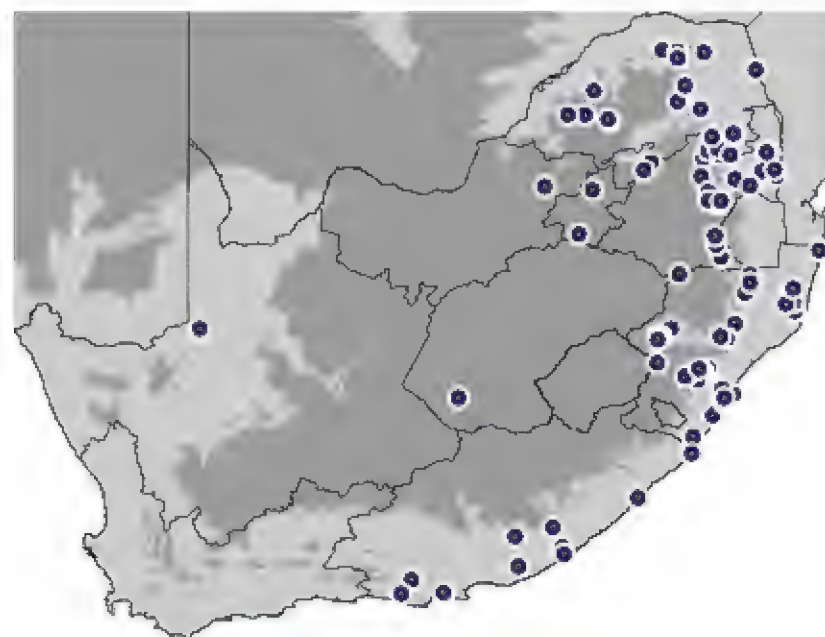


Dancing Jewel

Platycypha caligata (Sélys, 1853)

Appearance: The Dancing Jewel is a small, stocky and very colourful species, with a mixed orange red and black thorax and mostly brilliant blue abdomen. Face all black, head with almost square bluish green patch with two forward pointing, light orange, triangular markings when viewed from above. Eyes dark brown to black; neck blackish with orange splashes. Thorax, when black, with cream to bluish green central line and spot from above; sides of thorax a vivid mixture of black, orange and red stripes. Wings clear with blackish veins, tend to be slightly smoky at base with smokiness increasing across wings with age. Pterostigmas black. Legs colourful, upper leg mostly black, flattened lower leg bright red on outside and brilliant white on inside. Abdomen stocky, almost entirely bright blue, first three segments with deep red and black markings as well. Segmental joints marked by fine black rings. Appendages black. Female with thoracic pattern similar to male, overall yellow to buff mottled with blackish brown markings; pterostigmas black with buff centre.

Field notes: The Dancing Jewel is common across the northern savanna parts of the country and along the eastern seaboard to the southern coast of the Eastern Cape. It also occurs along the Orange River but is absent from the Western Cape. The Dancing Jewel tends to occur away from the coast itself, and prefers elevations of 100–800 m; it has occasionally been recorded at 1 500 m. At high elevations it tends to prefer more open, sunny habitats. It is common across much of Africa from Angola to Ethiopia. It prefers bushy or forested areas with sunlit, shallow, rocky streams and small rivers with slow and fast reaches, and with river pools. Occasionally the Dancing Jewel is also found in more open, shallow, rocky rivers with margins of tall grasses. It is very conspicuous as it rests on boulders, twigs, or on overhanging

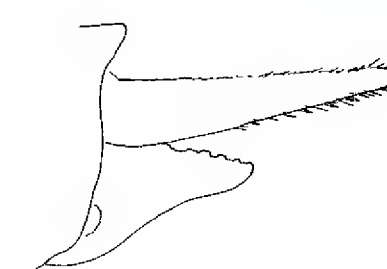


Threat

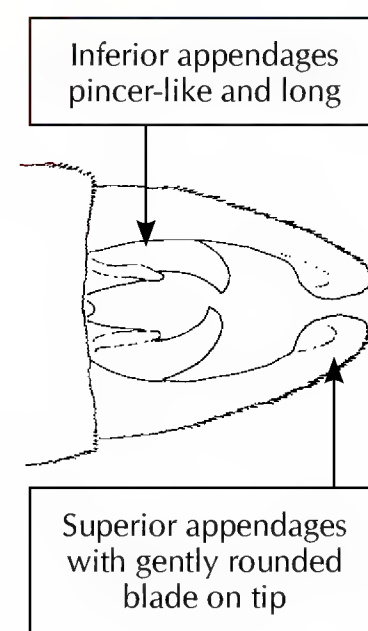
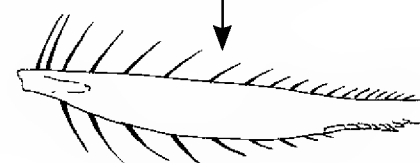
LC

DBI

2



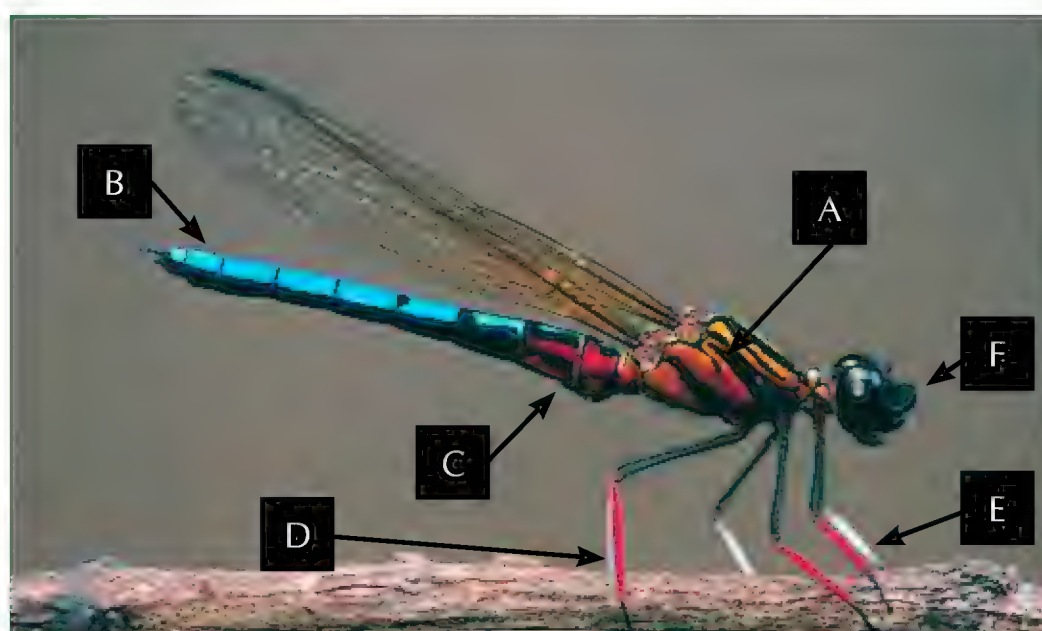
Forelegs very wide



Inferior appendages pincer-like and long

Superior appendages with gently rounded blade on tip

reeds or leaf blades within the stretch of water or at its edge. This species is generally reluctant to fly but when it does so, its flight is short and bee-like. One of its remarkable features is its striking and elaborate courtship dance where a male hovers in front of a resting female with his legs dangling and waving, displaying the white insides of his lower legs. Its flight period is mid-December to mid-May.



- Stocky build
- Abdomen mostly blue
- Forelegs wide, bright red on outside and white on inside

- A. Thorax strongly striped, mostly black, yellow and orange
- B. Abdomen bright blue
- C. Red base
- D. Forelegs bright red on outside
- E. Forelegs wide, white on inside
- F. Distinct nose

Body length: 31–33 mm

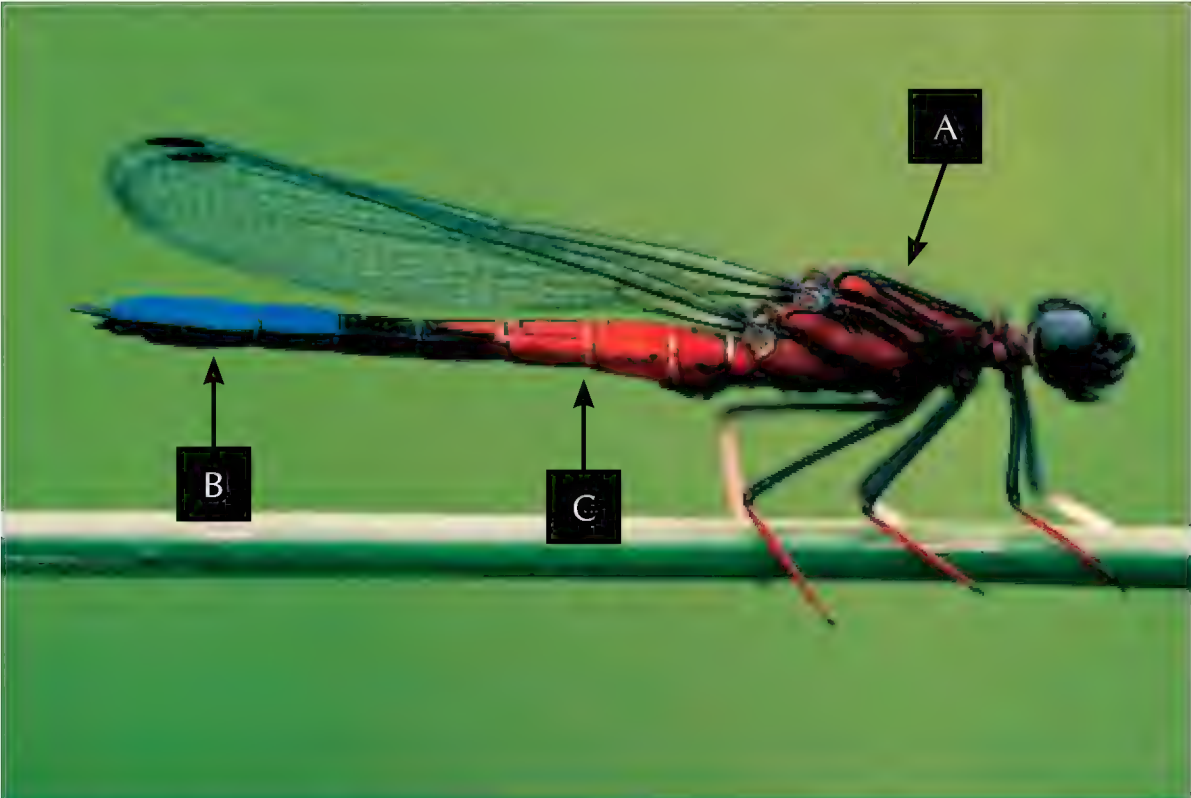
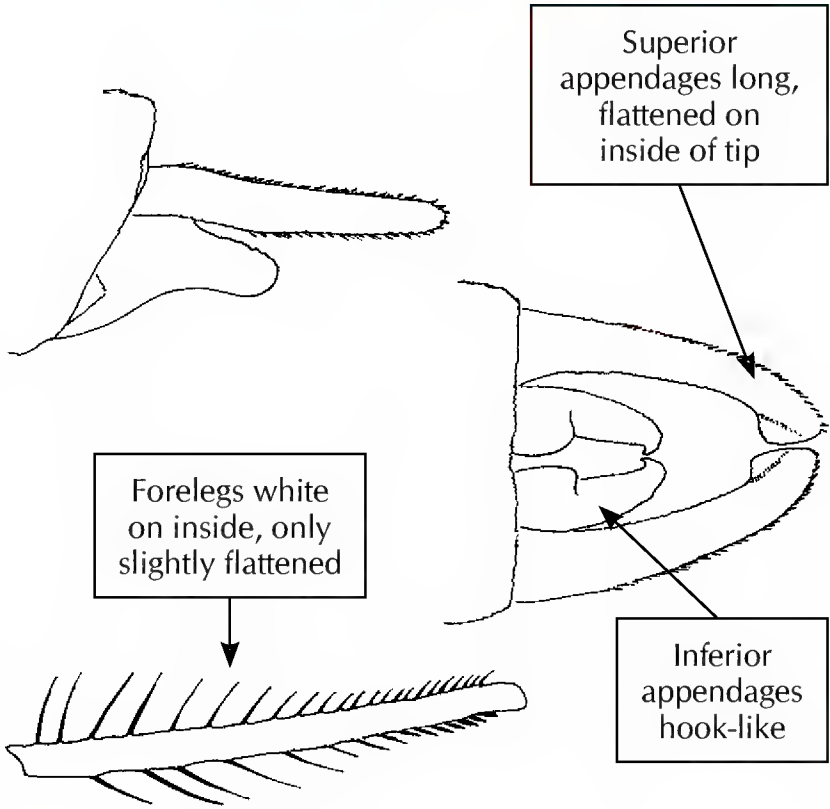
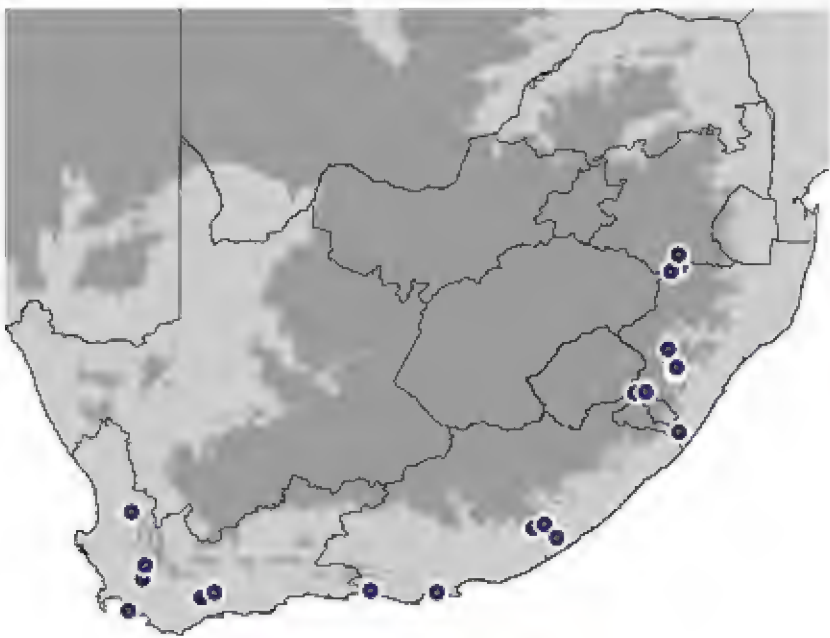
Hindwing length: 21.5–22.0 mm

Boulder Jewel

Platycypha fitzsimonsi (Pinhey, 1950)

Appearance: The Boulder Jewel is a very attractive, small, stocky, bright red, blue and black damselfly. Face all black. Head with central almost square, light orange spot with two forward pointing brown markings and two light orange spots just behind black eyes from above. Neck red with black markings; thorax deep red with black stripes, some orange on sides. Wings clear with very dark veins, slight smokiness at wing bases. Pterostigmas black with brown centre. Upper legs black, lower legs slightly flattened with red on outside and white on inside. First four segments of abdomen mostly bright red, fifth segment mostly red above and black below, sixth segment all black. Segments 7–10 bright light blue above and black below. Appendages black. Female all brown, thorax mostly dark brown above and light brown at sides. Abdomen patchy dark greyish brown and light brown.

Field notes: The Boulder Jewel tends to be localised from the KwaZulu-Natal Midlands south along the coastal rim to the Western Cape. At its northern localities it is usually at elevations of 1 000–1 500 m although occasionally down to 100 m. In the Western Cape, it occurs from 30–500 m. It has a disjunct distribution, with a second population in the mountains of the Mozambique–Zimbabwe border. The Boulder Jewel is very conspicuous in its habitat of shallow, rocky, fast, montane streams with borders of tall grasses, reeds and small bushes. It often perches on boulders midstream, or on twigs, reeds or grasses overhanging the water. Its flight is short and bee-like; on the wing from late October through to mid-April.



- Stocky build
 - Abdomen red in first half
 - Abdomen with blue tip
- A. Red and black thorax
B. Blue abdomen tip
C. Red abdomen base

Body length: 33–34 mm

Hindwing length: 21.5–22.0 mm



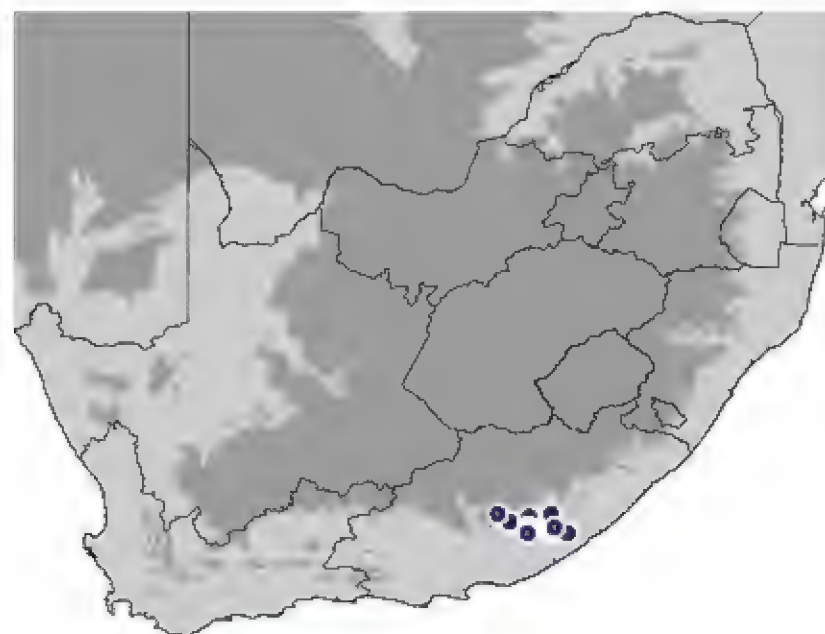
Amatola Malachite

(Basking Malachite)

Chlorolestes apricans Wilmot, 1975

Appearance: The Amatola Malachite is a medium-sized, striking, metallic green to copper damselfly, with distinctive white pruinescent patches on the neck and between the wing bases. Face shiny metallic green to gold or copper, with dull yellow spots on front of face. Eyes light to dark brown above, light greyish blue below. Neck distinctively marked with heavy whitish pruinescence in mature individuals. Thorax metallic green to gold or copper when viewed from above, deep yellow to light brown below. Area between wing bases marked with whitish pruinescent spots. Wings strongly banded black and white in mature males. Pterostigmas yellowish, slightly darker on inside, darkening to all brown with age. Abdomen bright metallic green with fine yellow rings at start of each segment. Segments 1 and 8–10 strongly whitish pruinescent above. Female similar to male but without wing banding and less pruinescence on neck and between wing bases; segments 1 and 8 lightly pruinescent, segments 9 and 10 heavily greyish pruinescent.

Field notes: The Amatola Malachite is one of South Africa's rarest and most threatened narrow-range, endemic damselflies. It is restricted to a few unspoilt rivers in the Amatola–Winterberg mountains of the Eastern Cape. It prefers open, shallow, rocky-bottomed streams and small rivers which have a profusion of reeds, grasses and small bushes lining the water's edge. Reluctant flyer, usually seen perching on grass stems or

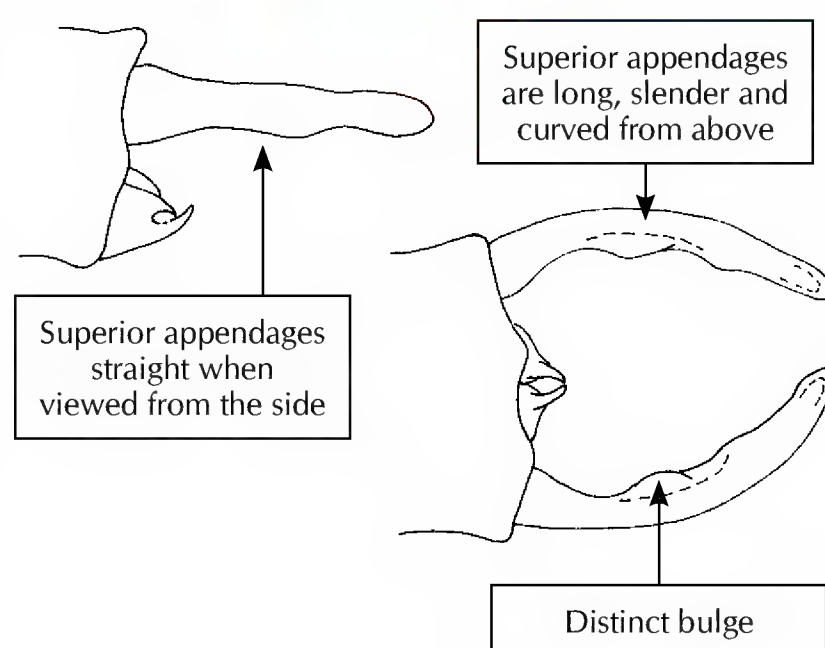


Threat

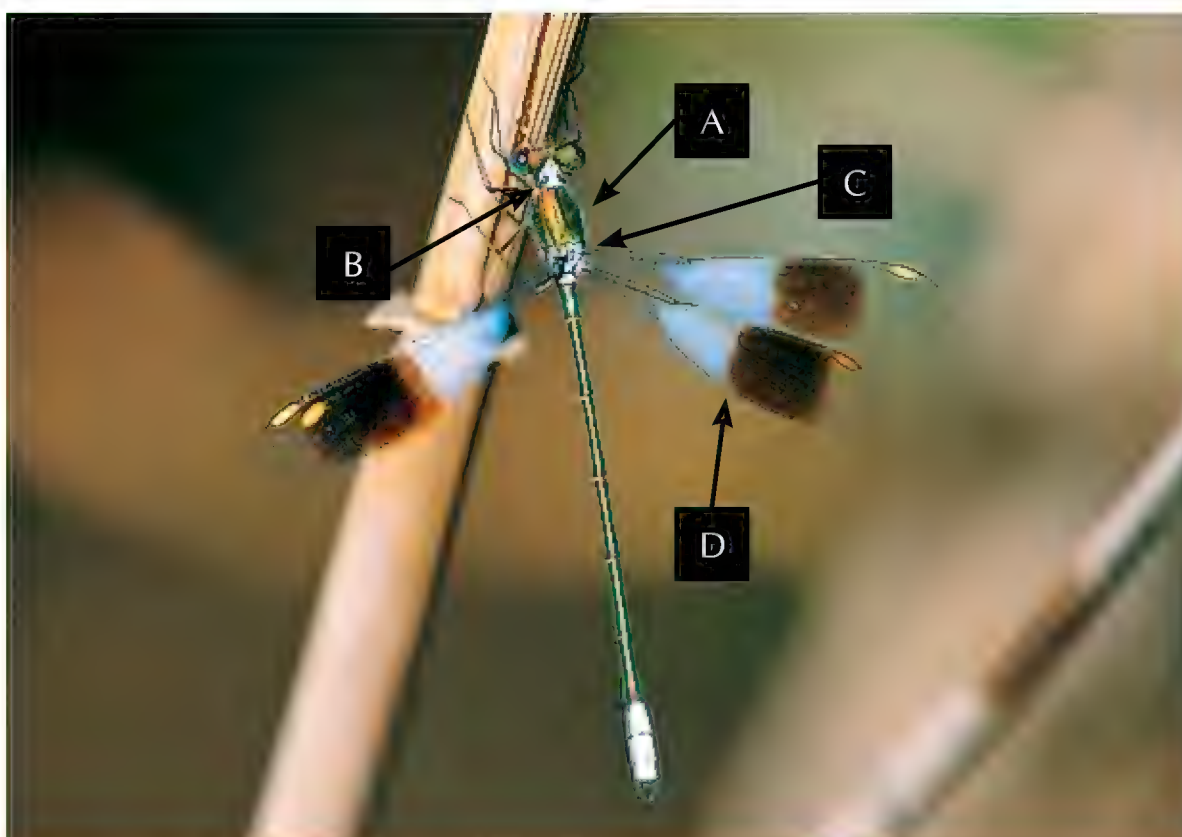
EN

DBI

9



reeds over the edge of streams in full sunshine by hanging with outstretched wings and abdomen pointing downwards. On the wing from mid-December to early May.



- Black and white wings
- White neck
- Shiny green thorax and white between wings

- A. Shiny green thorax
- B. Pruinescent neck
- C. Pruinescent white between wings
- D. Black and white wings

Body length: 38 mm

Hindwing length: 20.5 mm

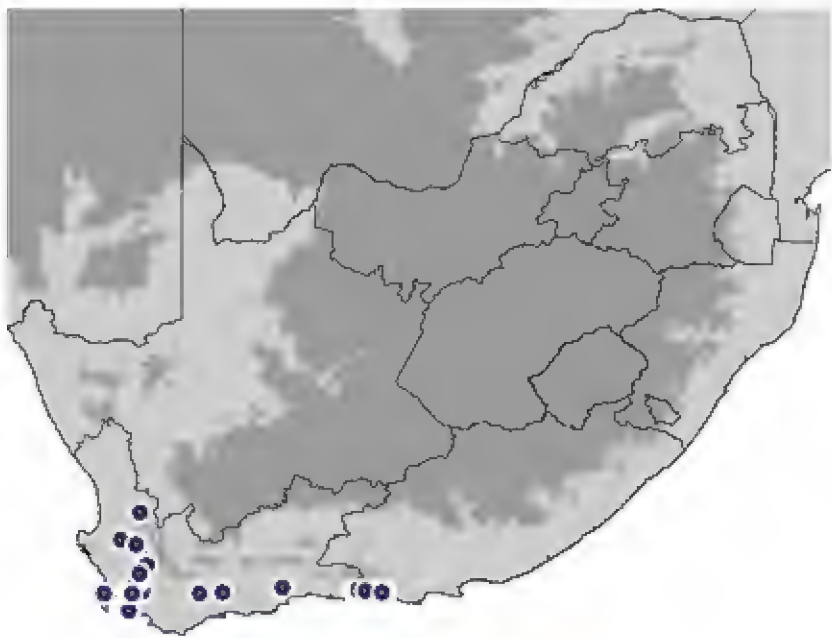


Conspicuous Malachite

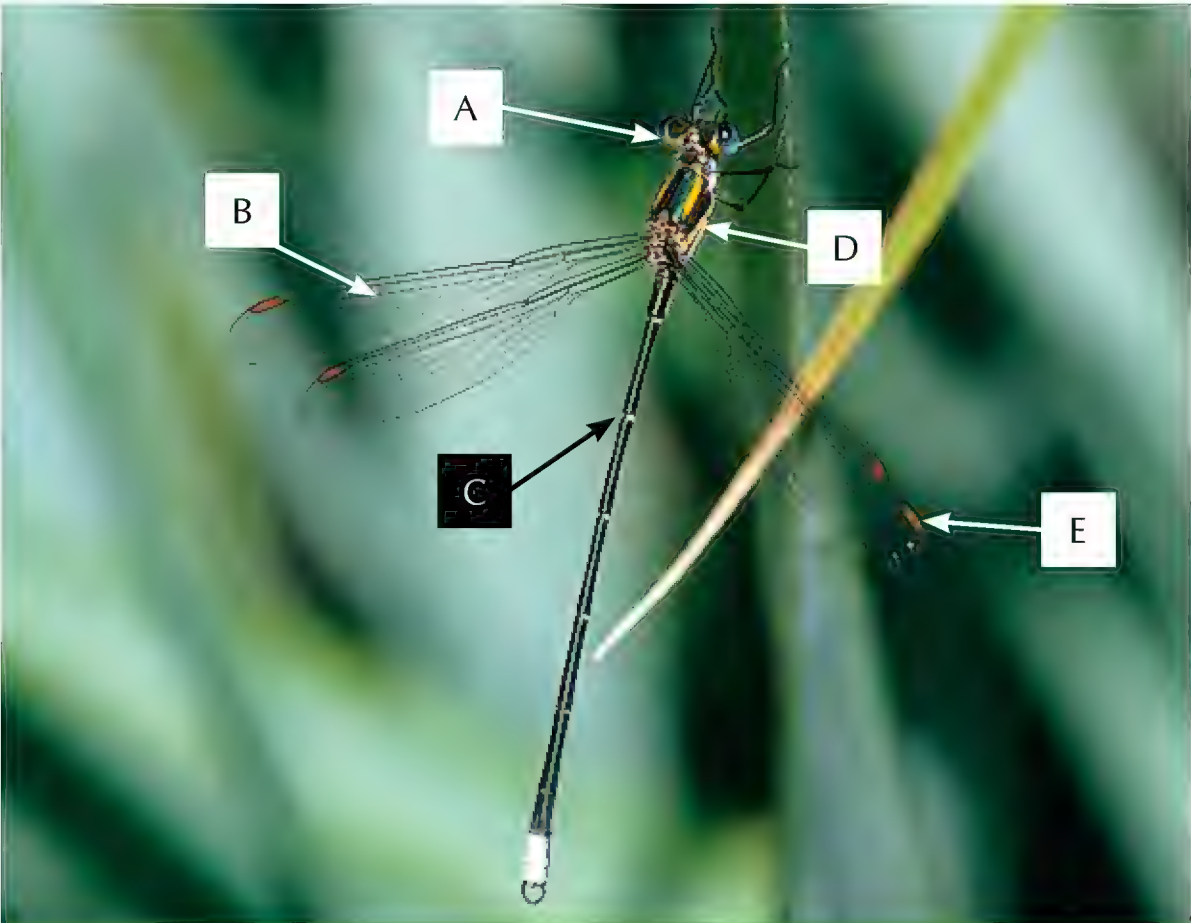
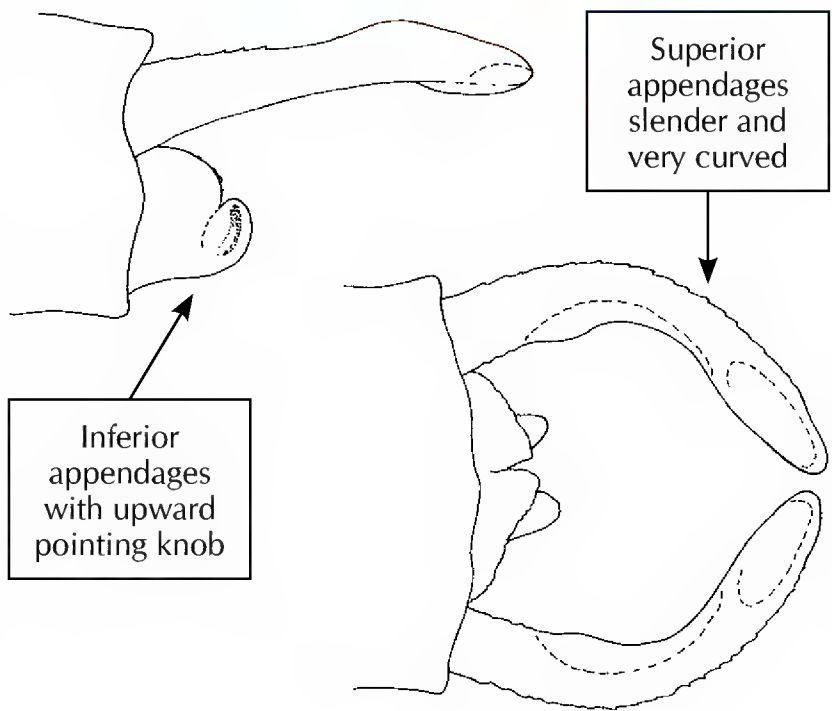
Chlorolestes conspicuus Hagen in Sélys, 1862

Appearance: The Conspicuous Malachite is a very large, dull metallic green damselfly with clear wings and extensive yellow areas on the head. Face metallic green and blue with central yellow band. Head with yellow band on top, bold yellow marks on back of head beside each eye. Eyes dark greenish brown above, light bluish green below. Thorax dark metallic green with pairs of striking stripes on sides; underside pale yellow with whitish pruinescence. Wings clear with black venation. Pterostigmas large, light to dark brown depending on age. Abdomen dark metallic green above, greyish yellow below. Fine yellow rings present between segments. Segments 9 and 10 with heavy whitish grey pruinescence. Female similar to male, overall somewhat browner, lacks whitish tip to the abdomen.

Field notes: The Conspicuous Malachite is localised in the mountainous regions of the Western Cape and the western part of the Eastern Cape. It occurs along streams and small rivers with an abundance of marginal grasses, reeds, bushes and occasional trees. Although overall dull, the relatively bright lateral stripes on the thorax render it conspicuous. Its large size and hanging behaviour with outstretched wings from prominent perches helps with identification – usually easy to spot resting on vegetation overhanging water in full sunshine. Recorded to be on the wing from late November through until June.



Threat	DBI
LC	6



- Large size
 - Clear wings
 - Green and yellow stripes of thorax of similar width
- A. Distinct yellow areas next to eyes
B. Clear wings
C. Distinct yellow rings at joints
D. Strongly striped metallic green and bright yellow thorax
E. Pterostigmas one colour

Body length: 64 mm

Hindwing length: 33.0–33.5 mm

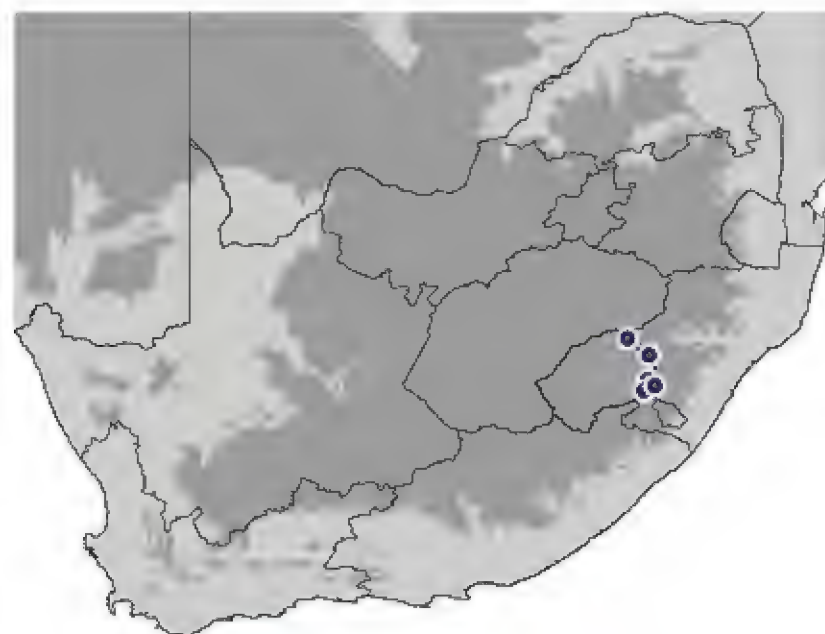


Drakensberg Malachite

Chlorolestes draconicus Balinsky, 1956

Appearance: The Drakensberg Malachite is a fairly large, metallic green damselfly with yellow stripes and clear wings. Face bright metallic green with central yellow band. Head metallic green from above. Eyes dark brown above, bluish grey below. Thorax bright metallic green with narrow, distinctive yellow stripe along the top edge, meeting in a V-shape on neck; sides striped yellow and metallic green; below with whitish pruinescence. Area between wing bases yellow, forming an indistinct central stripe. Wings clear. Pterostigmas creamish to light brown outside, light brown to black inside depending on age. Abdomen dull metallic green with fine yellow rings at start of each segment, fine but distinctive yellow line at top. Segments 9 and 10 pruinescent whitish grey. Female similar to male, with bicoloured pterostigmas, only slight pruinescence on segment 10.

Field notes: The Mountain Malachite is a rare and localised species only found above 1 800 m elevation in the KwaZulu-Natal/Lesotho Drakensberg. It inhabits small, clear, high montane streams with boulders and pools, lined with tall grasses, reeds and bushes. It is mostly seen at rest with its wings outstretched, hanging from vegetation over water. It makes occasional brief flights to catch prey or to move perches. On the wing from mid-October to early May.

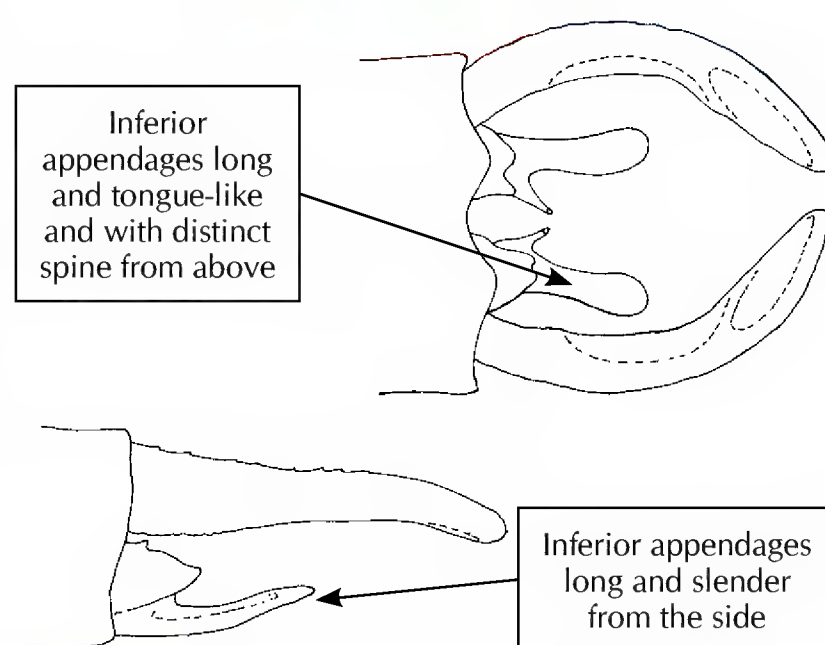


Threat

LC

DBI

6



- A fairly large, unbanded malachite
- From above distinct yellow lines on neck and shoulders
- Abdomen with fine yellow rings and fine yellow dorsal line
- Confined to high Drakensberg, above 1 800 m

- A. Clear wings
- B. Yellow V-shape on neck and thorax
- C. Two-coloured pterostigmas
- D. Fine yellow line running along top of abdomen

Body length: 52 mm

Hindwing length: 29.5–30.0 mm

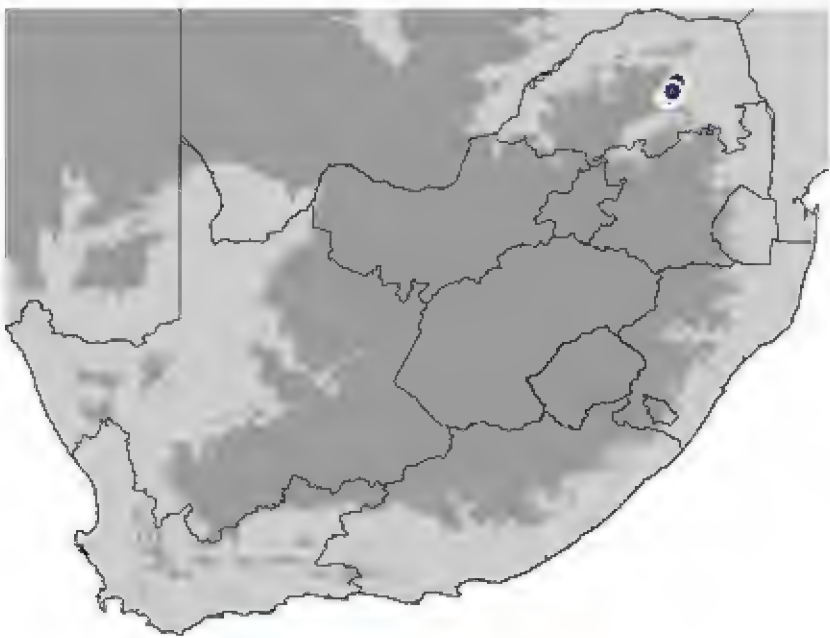


Elegant Malachite

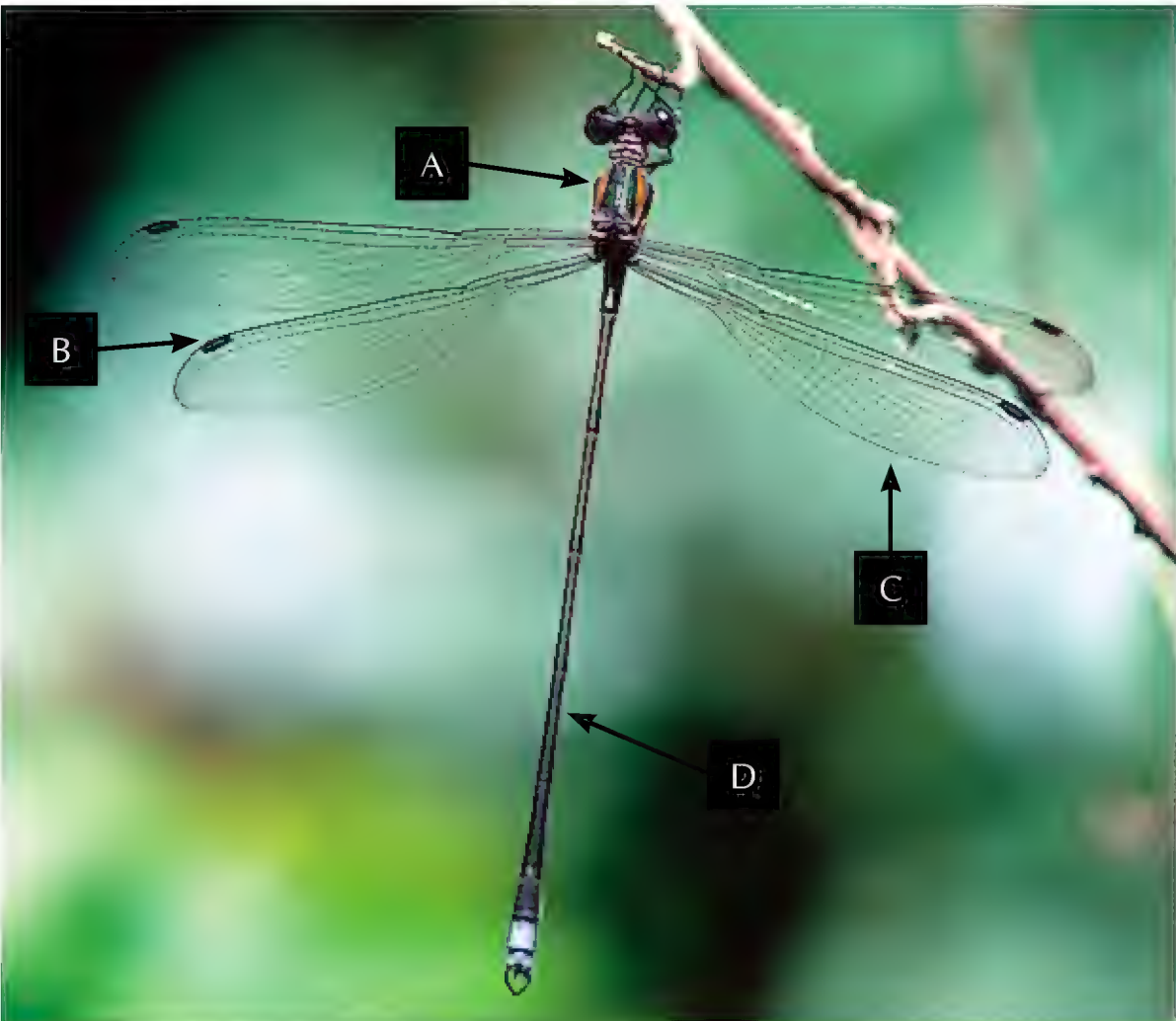
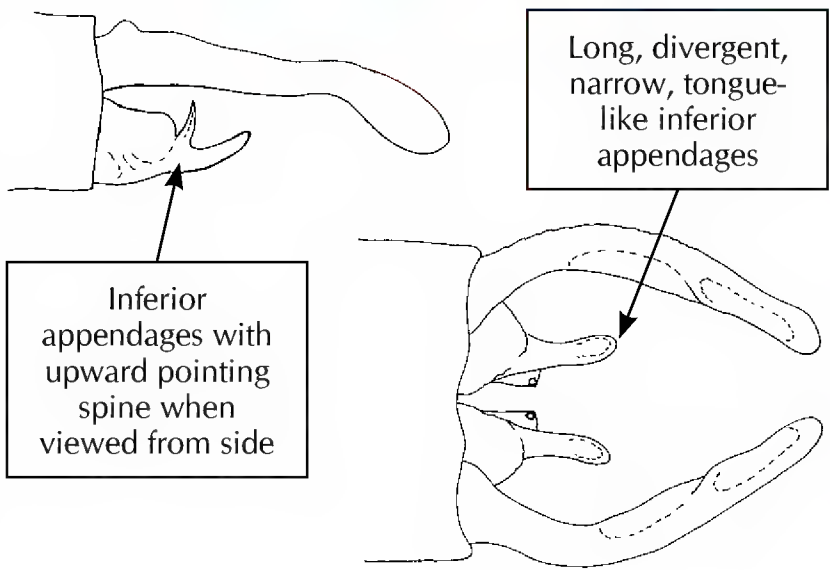
Chlorolestes elegans Pinhey, 1950

Appearance: The Elegant Malachite is a large to very large damselfly, dark metallic green and brown, usually with clear wings, but sometimes banded. Face dark metallic green with pale yellow central area. Head dark metallic green above. Eyes greenish black above, greyish black below. Thorax metallic green and bordered with dark yellow stripe from above, striped dull metallic green and yellow from side, underside dull straw colour with three distinct dark brown marks that look like a frowning human mask. In South Africa, wings clear in most males, some with indistinct black and white banding. Pterostigmas mostly blackish brown, outer sections tend to be lighter. Abdomen dull metallic green with indistinct yellow rings at start of each segment. Segments 9 and 10 pruinose greyish blue. Female similar to male, although with very little or no pruinescence on segments 9 and 10.

Field notes: This is a localised species recorded only from streams above 1 200 m elevation in the Magoebaskloof area. It also occurs in localised areas of the highlands of Zimbabwe, Mozambique and Malawi. It favours montane streams and small rivers with pools and clearings in well forested areas. Mostly seen at rest with outstretched wings, hanging from vegetation in sunflecks in the forest. Highly camouflaged in shade. Recorded to be on the wing from late November to late April.



Threat	DBI
NT	6



- Very slender
 - Shoulder stripes dark yellow
 - Pterostigmas blackish brown
- A. Dark yellow shoulder stripes
B. Two-coloured pterostigmas, becoming all dark with age
C. Wings usually clear, sometimes with weak black and white markings
D. Slender abdomen

Body length: 60–61 mm

Hindwing length: 31.5–32.0 mm

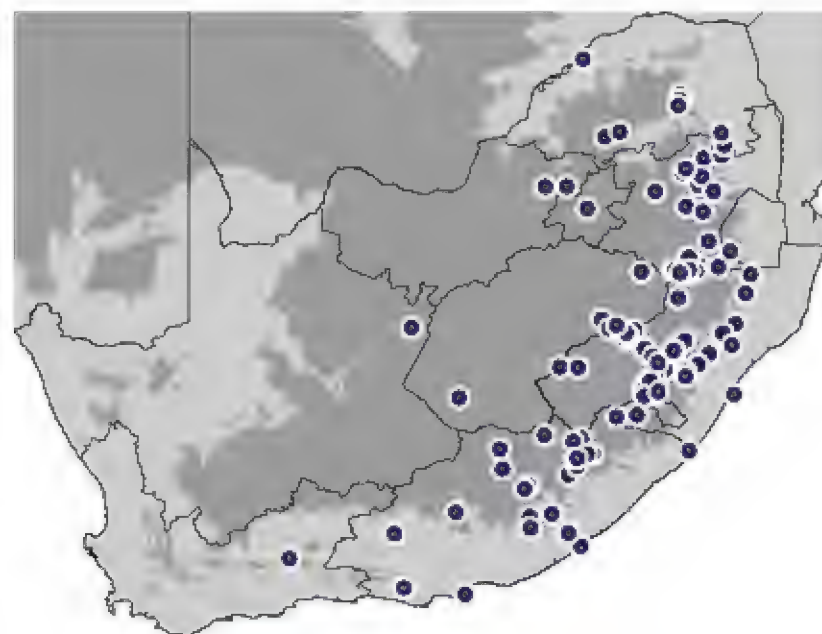


Mountain Malachite

Chlorolestes fasciatus (Burmeister, 1839)

Appearance: The Mountain Malachite is a fairly large to large metallic green damselfly with pale yellow markings, usually with strongly marked, black and white banded wings. Young individuals bright metallic green, darkening to dull metallic green with age; very old individuals bright shiny copper. Face bright metallic green with strong central yellow band. Eyes greyish above, light greenish grey below, darkening with age. Thoraxes of young individuals bright metallic green, outlined bright yellow from above; sides with bright yellow stripes; dull dark green in northern populations. Wings strongly black and white banded, occasional individuals with clear wings even when fully mature; can become smoky in clear-winged individuals occurring in shaded habitats. Pterostigmas cream to light brown outside, blackish inside. Abdomen metallic green (like thorax), can become duller green with age, eventually becoming copper. Fine yellow rings at start of each segment. The hind margin of segment 8 and all of segments 9 and 10 whitish pruinescent. Individuals living in shady habitats may have only a light dusting of pruinescence. Female similar to male, always with clear wings; pruinescence on segments 8–10 not as dense as on male.

Field notes: A common species between 1 200 and 1 800 m elevation throughout all montane areas of South Africa, except the western regions of the Western Cape. In the southern Drakensberg, it can be found at 2 400 m elevation and at Umtamvuna it can occur almost down to sea level. There is an isolated population in the Mountain Zebra National Park. Occurs along rivers and streams with boulders and pools, lined with

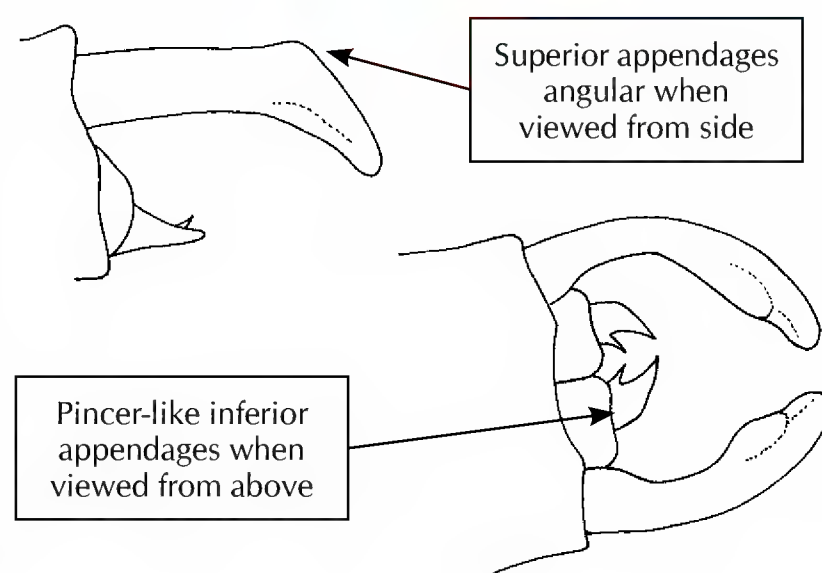


Threat

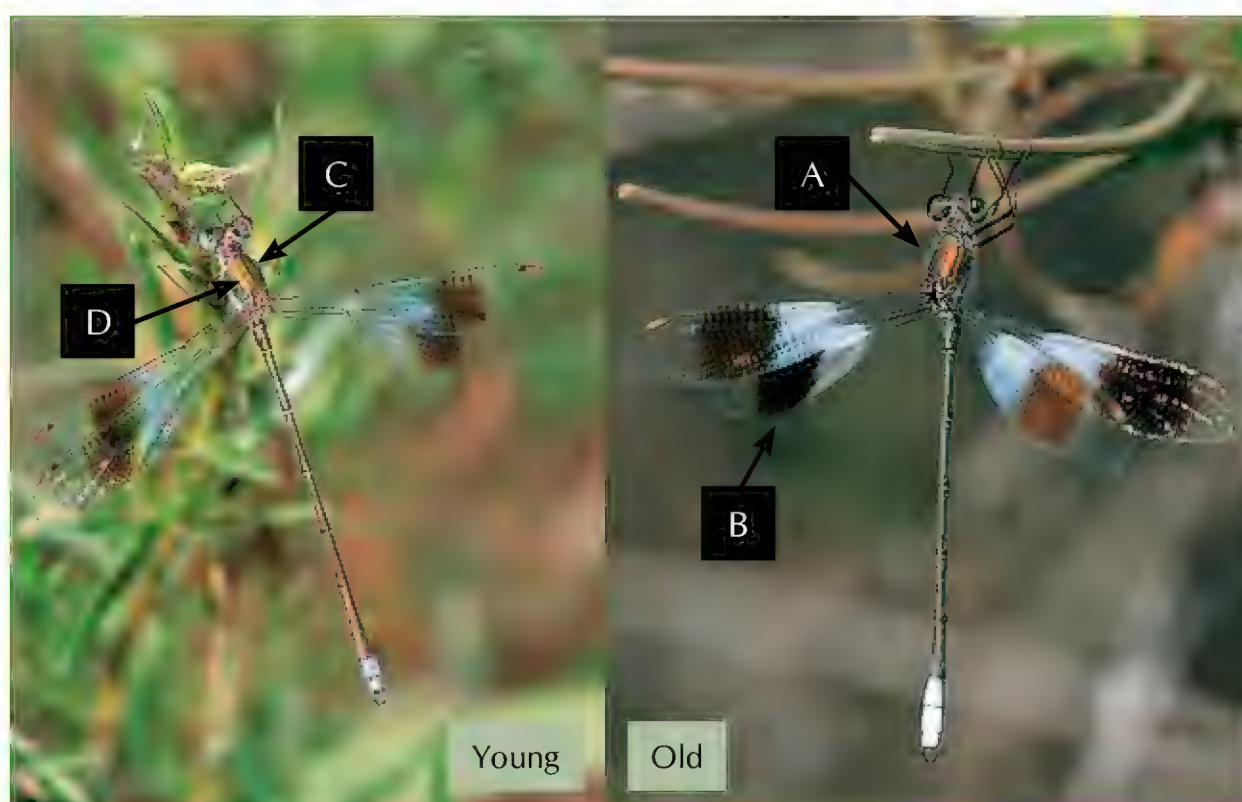
LC

DBI

4



tall grasses and bushes over water. In northern localities and coastal locations it may occur in forests with sunflecks on pools. It is seen mostly at rest with outstretched wings on vegetation overhanging water. Recorded to be on the wing from late November through until June.



Young

Old

- Usually black and white wings
 - Thin yellow shoulder stripe that darkens with age
- A. Bronze thorax, shoulder stripe darkening to brown
B. Black and white wings
C. Metallic green thorax
D. Narrow yellow shoulder stripe

Body length: 51–54 mm

Hindwing length: 29–30 mm

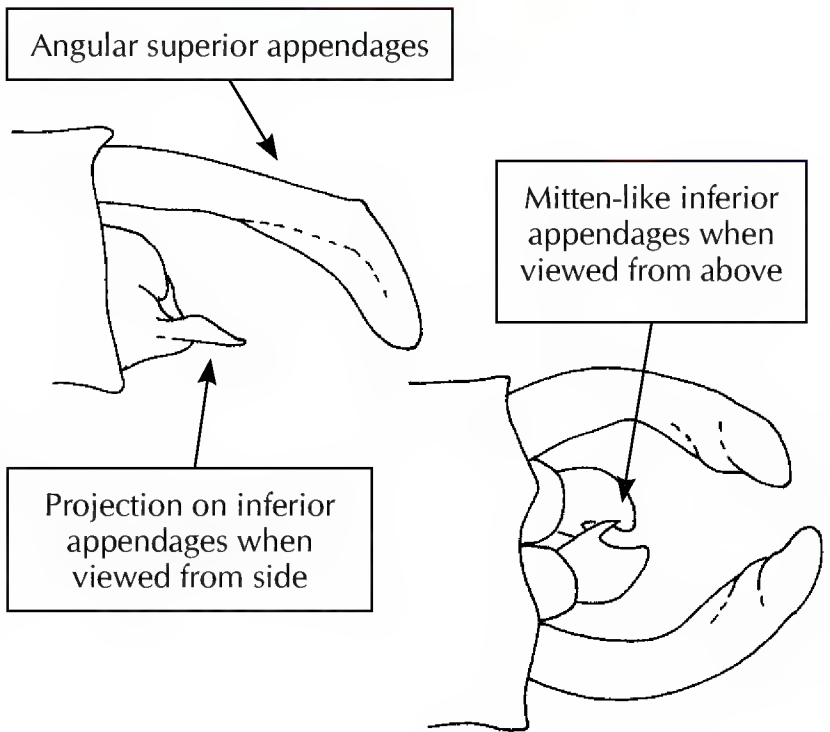
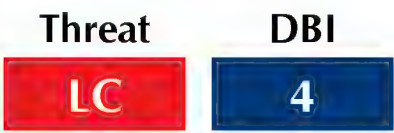
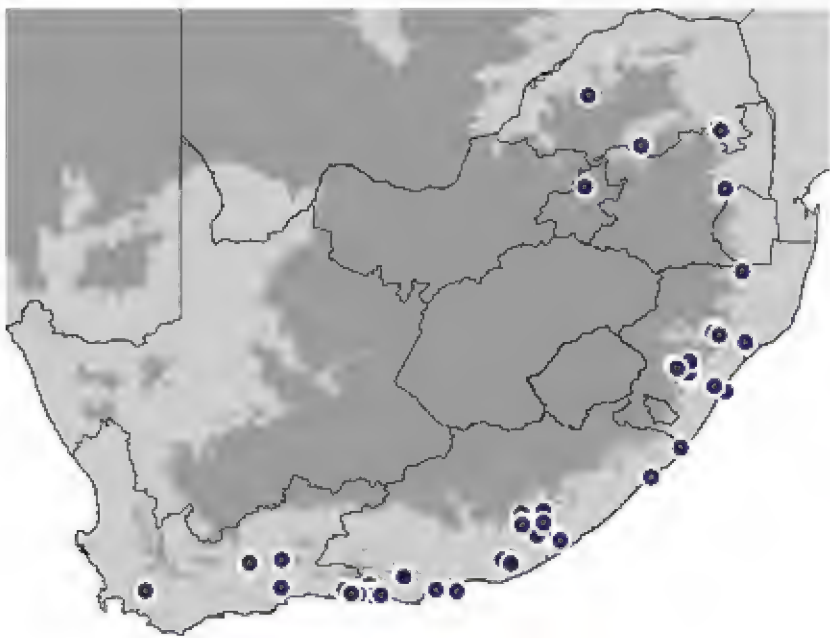


Forest Malachite

Chlorolestes tessellatus (Burmeister, 1839)

Appearance: The Forest Malachite is a fairly large, dull metallic green damselfly with indistinct straw coloured thoracic markings. Face mostly dull metallic green with some dull yellow patches. Eyes greenish grey with some brown. Thorax dull metallic green outlined by dull yellow stripes from above, sides and underside mostly pale yellow with some pruinescence below. In the Eastern Cape, with strongly marked black and white banded wings. In the Western Cape, KwaZulu-Natal, Mpumalanga and Limpopo Province, wings clear; some individuals in open habitats in KwaZulu-Natal with weakly banded wings. Pterostigmas cream or light brown outside, very dark brown inside. Abdomen dull metallic green from above, somewhat yellowish at sides. Segments 9 and 10 with whitish grey pruinescence. Female similar in colour and patterning to male, although wings always clear and never banded, only light pruinescence on segments 9 and 10.

Field notes: This species is widely distributed in many of the mountainous areas of South Africa, mostly between 400 and 1 200 m elevation. Individuals have occasionally been recorded at sea level. It is highly localised where it occurs in the mountains of the Western Cape. It prefers clear streams and small rivers with pools in forested areas with sunflecks, occasionally occurring in more open bushy habitats. Clear-winged individuals are camouflaged, whereas banded individuals are conspicuous and highly territorial. It hangs from twigs or stems under bushes or trees. On the wing from mid-November to May, occasionally overwintering adults are seen.



Eastern Cape

KwaZulu-Natal & northern provinces

Body length: 54 mm

Hindwing length: 30.5–31.5 mm

- Dark green body
- Strongly banded wings in Eastern Cape, clear wings elsewhere (northern populations)
- Pale buff on lower side of thorax

A. Deep yellow shoulder stripe
B. Banded wings
C. Clear wings
D. Dark green abdomen
E. Pale lower side of thorax

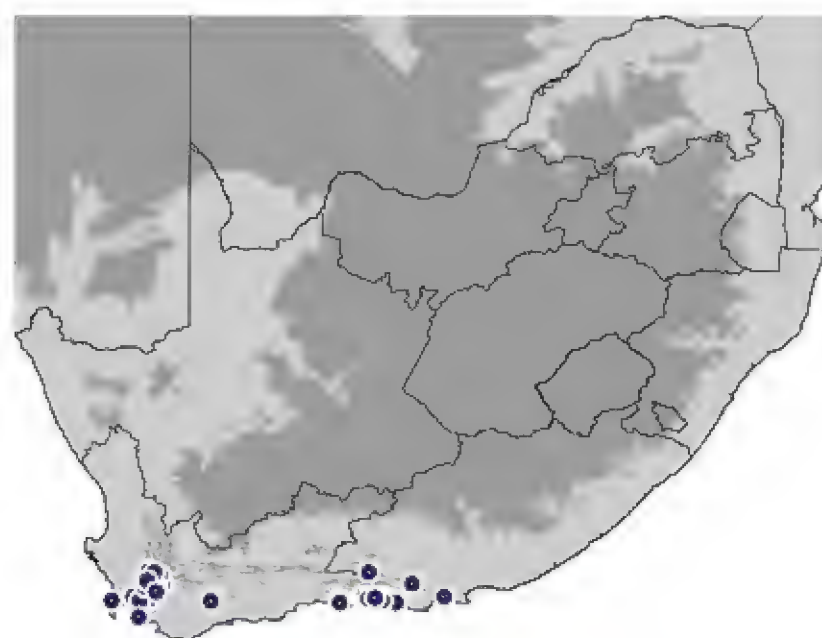


White Malachite

Chlorolestes umbratus Hagen in Sélys, 1862

Appearance: The White Malachite is a striking medium-sized, black and white damselfly. Face bright metallic green or bluish green with a small yellowish brown spot. Mature males with heavily white pruinescent neck and thorax from above. Thorax of young male with dull metallic green and dull yellow stripes. Eyes dark brown above becoming blackish in older males, dull yellow below. Wings strongly black and white banded in mature male, clear in young male. Pterostigmas buff, darkening to reddish brown with age. Abdomen dull metallic green. Segments 9 and 10 with whitish pruinescence. Female similar to young unbanded male, never with banded wings or pruinescence on thorax, segment 8 lightly pruinescent, segments 9 and 10 heavily pruinescent.

Field notes: The White Malachite is localised along the southern Western Cape coast and the western part of the Eastern Cape. It occurs in fast or slow, deep or shallow forested streams with sun flecks and is sometimes seen along more open streams and small rivers with dense patches of bushes. It is seen mostly hanging from twigs, reeds or grasses over the water, very conspicuous when it flies into a sun fleck. On the wing from late November until May with the occasional individual seen as late as July.

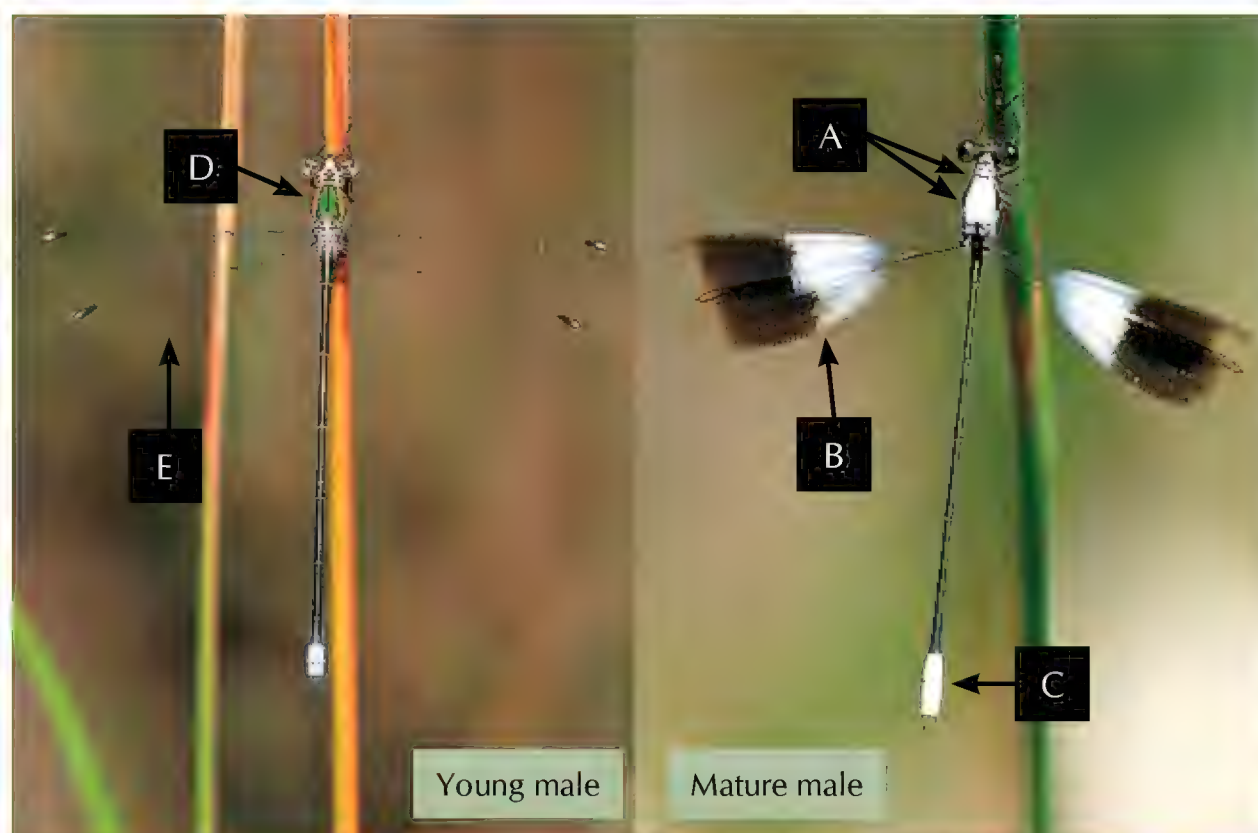
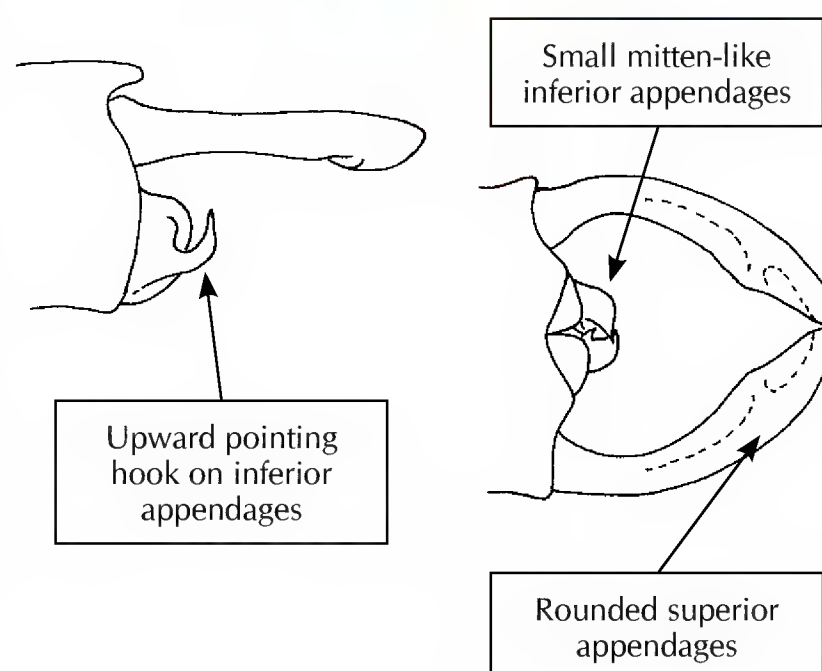


Threat

LC

DBI

5



- Small size
- Striking black and white wings when mature
- Striking white pruinescent neck and thorax when mature

- A. White pruinescent neck and thorax
- B. Strongly marked black and white wings
- C. White abdomen tip
- D. Bright green and yellow thorax
- E. Clear wings

Body length: 43.0–44.5 mm

Hindwing length: 22.0–23.5 mm

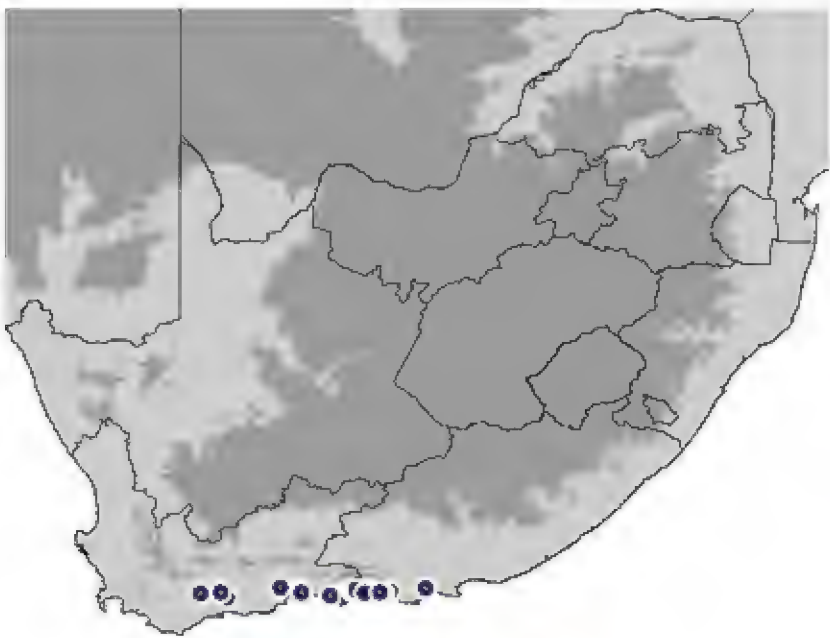


Queen Malachite

Chlorolestes (Ecchlorolestes) nylephtha
(Barnard, 1937)

Appearance: The Queen Malachite is a fairly large, slender damselfly, dull metallic green when young becoming brownish with age. Distinct pale greyish pruinescent spot on neck and one small and one large spot between the wings. Face shiny metallic deep bluish green with pale yellow spots. Head dull blackish brown with the first antennal segments pale yellow from above. Eyes above and in front dark greyish brown, behind and below yellowish grey. Thorax in young males dull metallic green darkening to dull brown with age, two narrow but distinct light yellow stripes on sides, yellowish with light pruinescence below. Area between wings heavily pruinescent with one large and one small greyish spot. Wings clear, tend to be slightly smoky. Pterostigmas dark brown. Abdomen metallic green in young males becoming dark brown with age. Yellow rings present at bases of segments 3 to 7. Segments 9 and 10 heavily pruinescent, light bluish grey. Female similar to male, duller, especially at the top of the head, segments 9 and 10 only lightly pruinescent.

Field notes: The Queen Malachite is only known from the forests of the southern Cape, from the east of the Western Cape to the west of the Eastern Cape. Its preferred habitat is small, clear streams with pools with high organic content in full forest. Both the males and females are seen at the water's edge, females are generally relatively inconspicuous. The male hangs from ferns and other vegetation with outstretched wings over the water. The Queen Malachite can be seen perching on boulders in streams with its

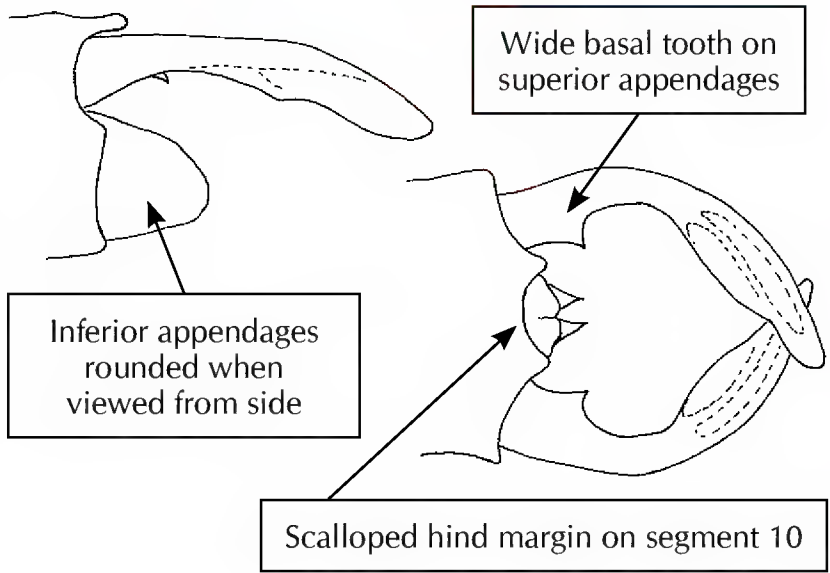


Threat

NT

DBI

7



wings spread out, similar to the Rock Malachite. On the wing from late November to late May.

Note: recent DNA work suggest that the genus *Ecchlorolestes* may have to be subsumed into the genus *Chlorolestes*.

- Very slender
- White neck
- Two white spots between wing bases
- Clear wings

A. White pruinescent neck
B. Two white pruinescent spots between wing bases
C. Clear wings
D. Pointed wings
E. Abdomen very slender and relatively unmarked

Body length: 52–54 mm

Hindwing length: 25.5–26.5 mm



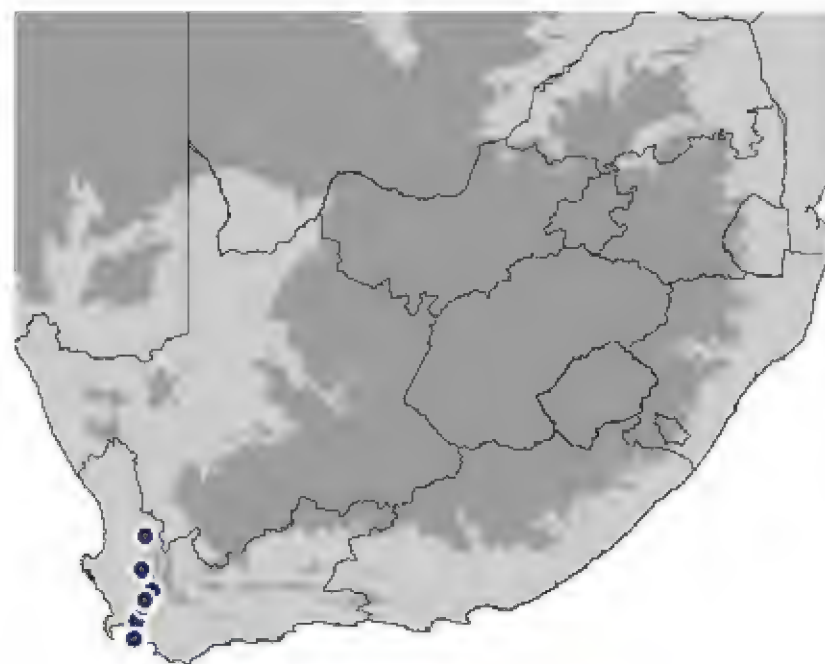


Rock Malachite (Marbled Malachite)

Chlorolestes (Ecchlorolestes) peringueyi
(Ris, 1921)

Appearance: The Rock Malachite is unmistakable. It is fairly large, marbled straw and brown, robust and very different in appearance from all other Malachites. Face metallic bluish green with light yellow spots on face and first antennal segment. Head deep brown from above. Eyes mottled grey, dark above and in front. Thorax dull metallic with dark and light brown mottling, much darker above than below, fine dusting of pruinescence on lower half. Wings clear with distinct black venation, without any black and white banding. Pterostigmas dark reddish brown, bordered on side and back edge with fine buff line. Abdomen mottled to striped, each segment starts with light yellow followed by dark brown and ends in dark brown ring. Segments 1, 2, 9 and 10 with fine whitish pruinescence. Female similar to male with more extensive dark markings, only slight pruinescence on segments 9 and 10.

Field notes: The Rock Malachite is highly localised in the mountains of the Western Cape. It is an inhabitant of clear montane streams and rivers with clear pools that are strewn with very large lichen-covered boulders. Both the male and female rest on the tops of the massive and well-weathered boulders where they are camouflaged among lichens. Occasionally the male can also be seen perching on twigs over the stream. It is sometimes seen on the wing in December and January, but it is usually a late season species, being most abundant in April and May.

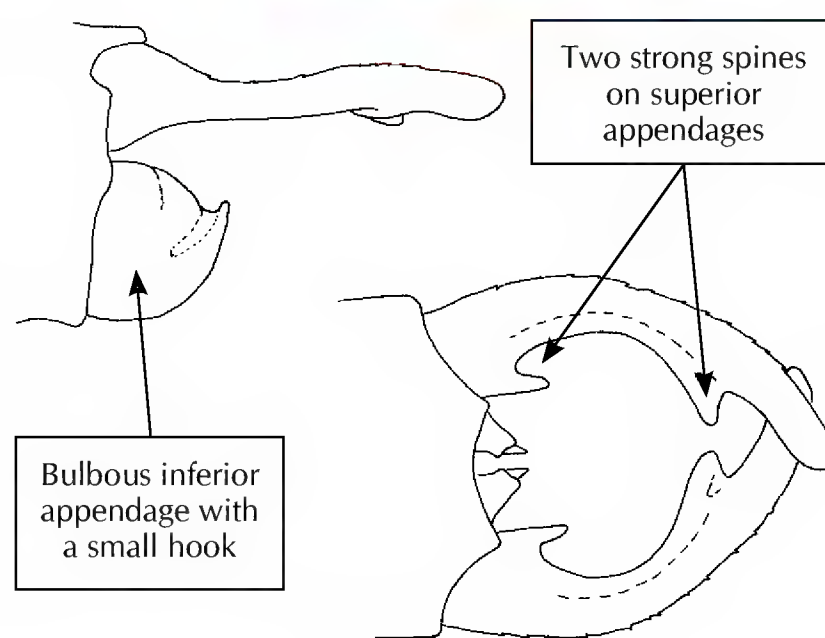


Threat

NT

DBI

7



Body length: 44–46 mm



- Highly camouflaged when perching on rock surface – noticed by its shadow
- All mottled brown
- Slightly metallic thorax

- A. Mottled thorax
B. Very clear wings
C. Pterostigmas dark reddish brown
D. Ringed abdomen

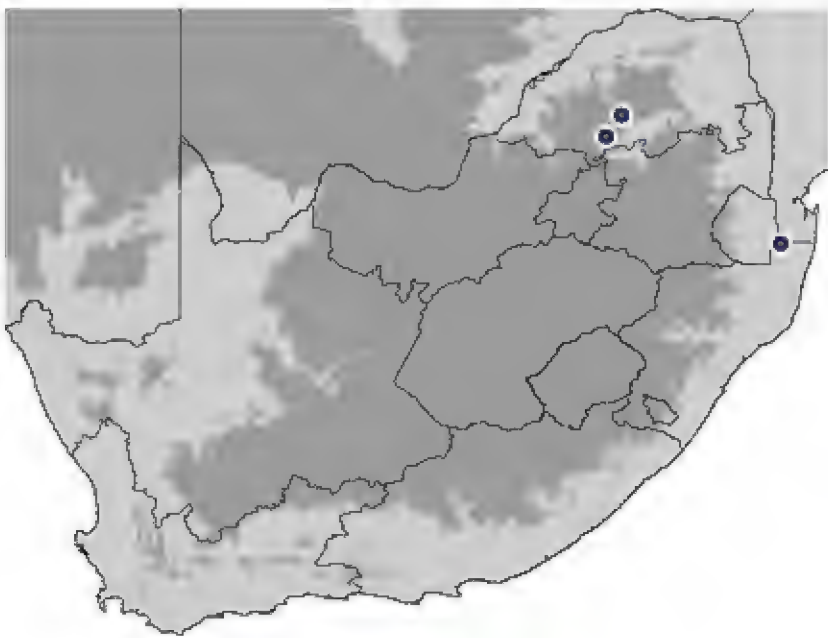
Hindwing length: 26–27 mm

Cryptic Spreadwing

Lestes dissimulans Fraser, 1955

Appearance: The Cryptic Spreadwing is medium-sized, greenish grey, speckled and lightly striped. Face pale bluish in lower part, remainder black. Head mostly black with sheen from above. Eyes bright blue above, greyish below. Neck metallic green and blotchy. Thorax with faint greyish brown and black irregular stripes, heavy pruinescence and small black dots on sides. Wings clear, becoming slightly smoky with age. Pterostigmas broad, rectangular, dark brown, with fine, pale borders on leading and outer edges. Abdomen is greenish grey with black markings. Beginning on segment 1 is a large spot, widening to a dorsal band on segments 2 to 7. Segment 8 mostly black. Fine, yellowish rings present at end of each of segments 1 to 7. Segments 9 to 10 pruinescent bright, light grey. Superior appendages all black. Female similar to male, greenish brown with broken metallic green stripes on thorax.

Field notes: The Cryptic Spreadwing is highly localised and highly variable in colour. It has been recorded in the hot savanna areas of Limpopo Province and the northern region of KwaZulu-Natal. Its distribution extends northwards to East and West Africa. It inhabits pools and swamps in hot savanna areas and can be found hanging with outstretched wings from tall grass stems and rushes over water. On the wing from December through to early May.

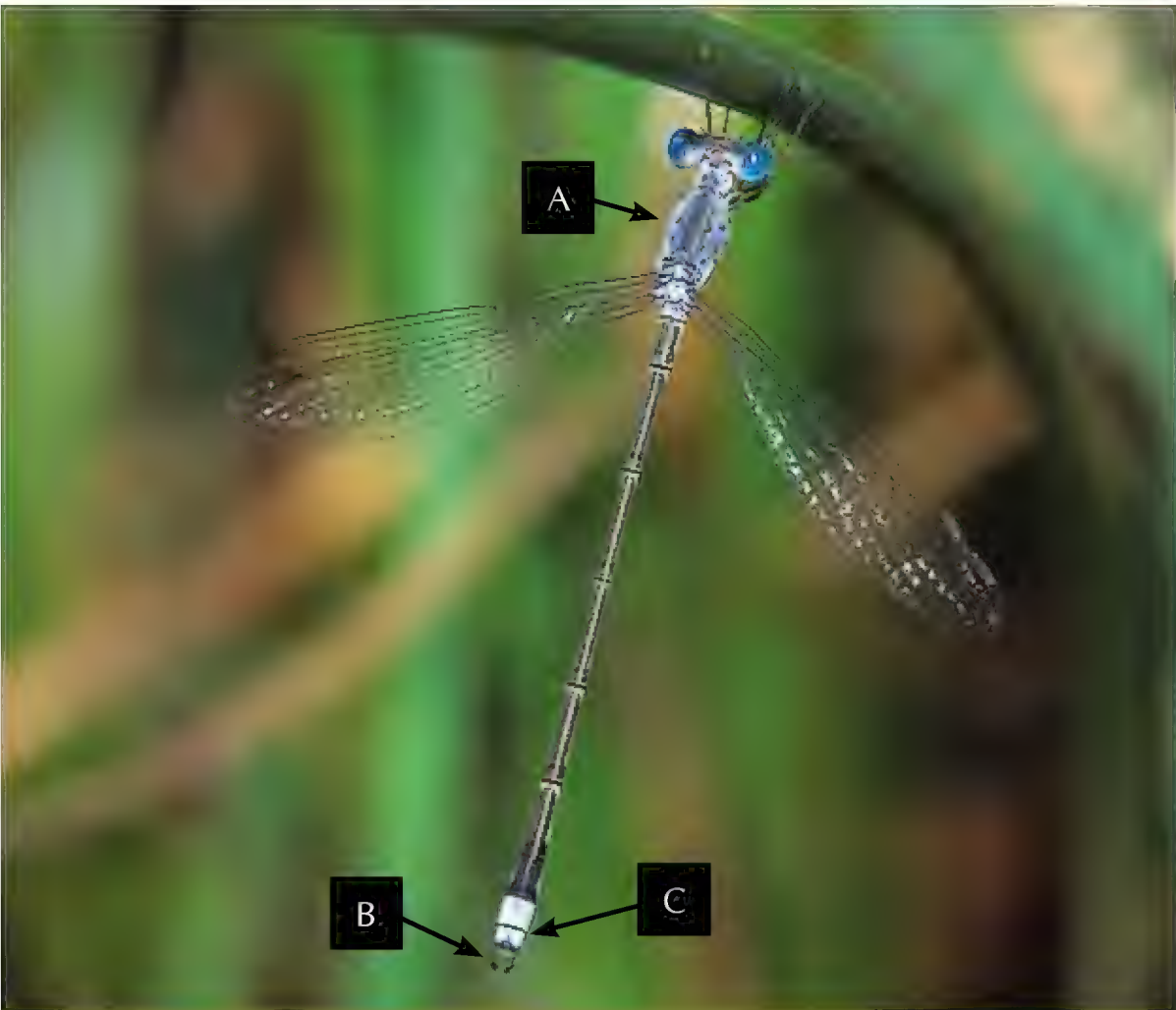
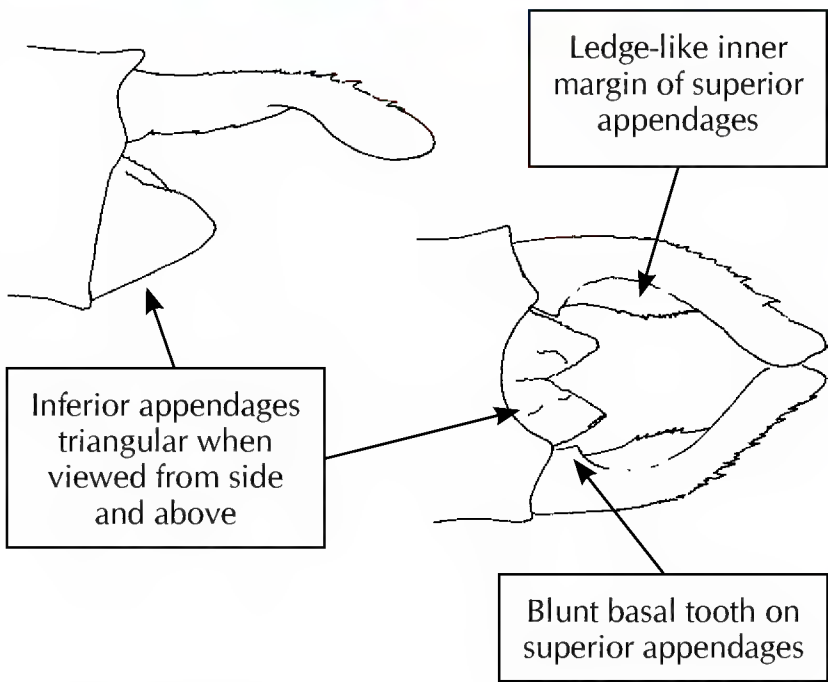


Threat

LC

DBI

5



- Thorax with distinct wavy stripes
 - All of abdominal segments 9 and 10 pruinescent white
 - Superior appendages black with white tips
- A. Thorax with wavy-edged stripes
B. Appendages black with white tip
C. All of segments 9 and 10 pruinescent white

Body length: 39–40 mm

Hindwing length: 21.5–22.5 mm

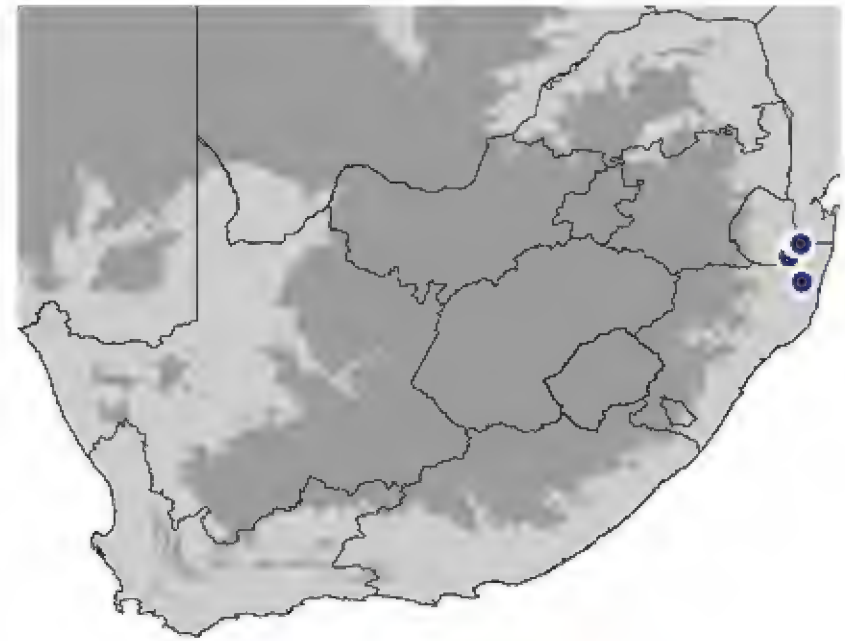


Tawny Spreadwing

Lestes ictericus Gerstäcker, 1869

Appearance: The Tawny Spreadwing is medium sized, rustic brown, with very few markings. Face brownish, with bluish green labrum. Head tawny brown from above. Eyes dull greyish blue in front, buff behind. Neck deep yellow, brown behind. Thorax tawny brown above, deep yellow below, virtually unmarked. Wings clear, becoming slightly smoky with age, with roundish tips. Pterostigmas short, dark brown. Abdomen mostly greyish brown with dark brown dorsal stripe. Segment 9 yellowish with tiny spots. Segment 10 yellowish. Female similar to male with rust brown head and unmarked thorax.

Field notes: The Tawny Spreadwing is very rare and localised in South Africa, having only been recorded in the far north of KwaZulu-Natal. Its distribution extends to East and West Africa. Its habitat is grassy and reedy pools, and sluggish parts of streams in hot savanna. It rests on tall grasses and reeds with outstretched wings, usually over water. On the wing from January to early May.

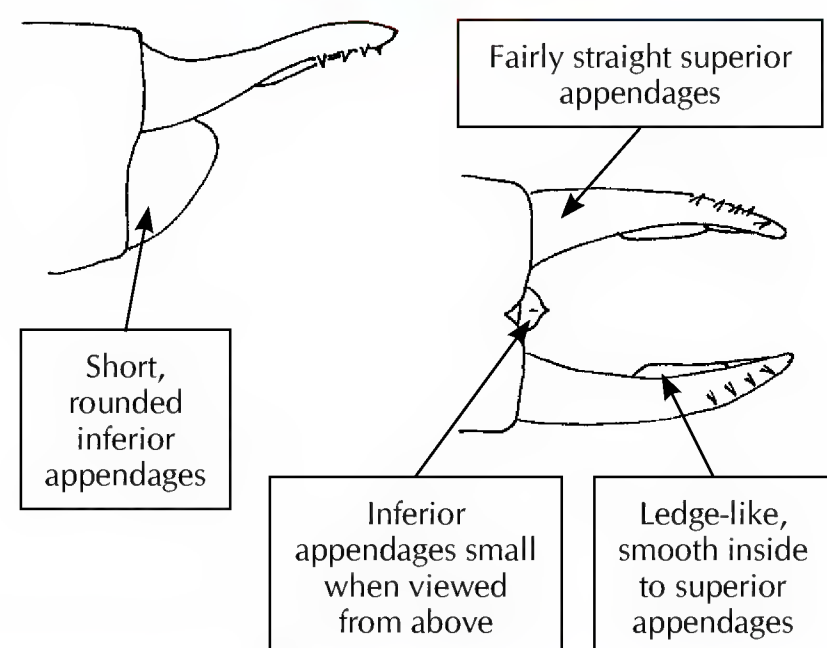


Threat

LC

DBI

6



- Virtually unmarked brown thorax
- Light tip to abdomen

- A. Thorax with no strong markings
- B. Rounded wing tips
- C. Light terminal segments and appendages

Body length: 40–41 mm

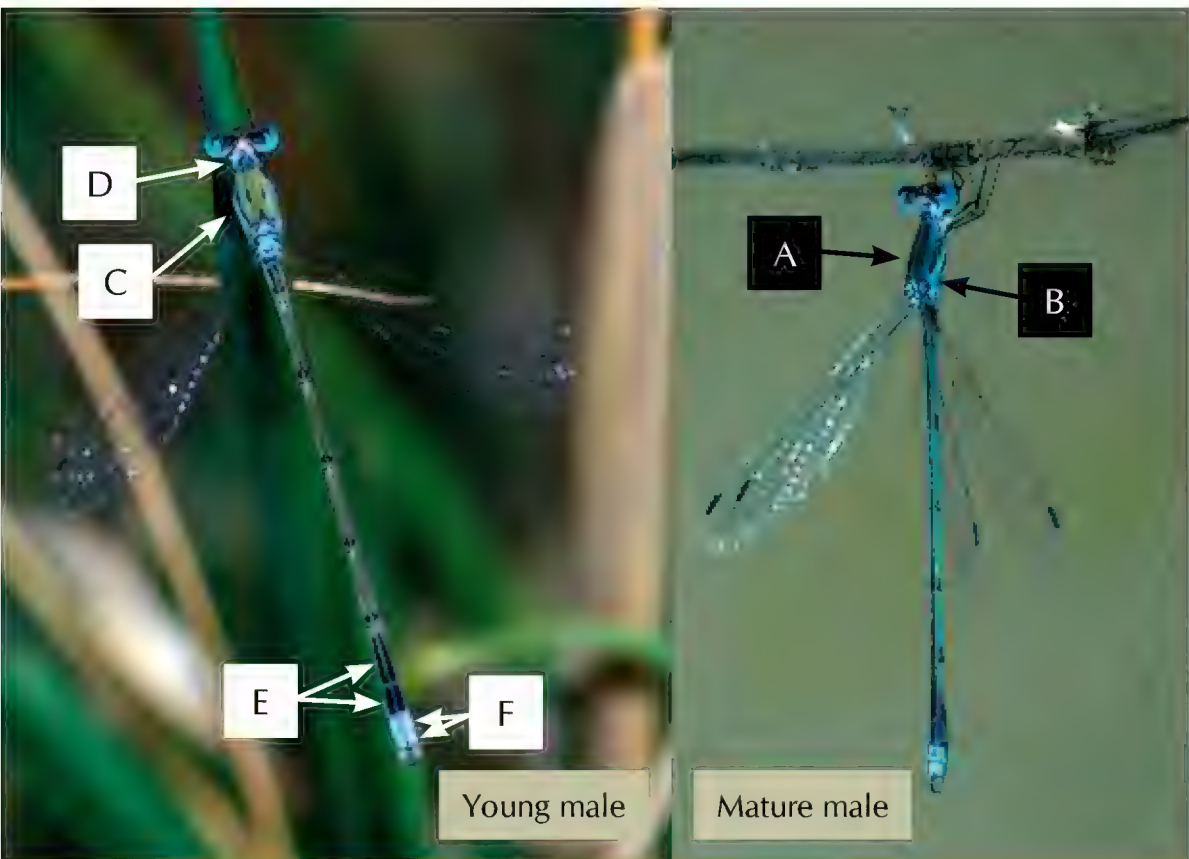
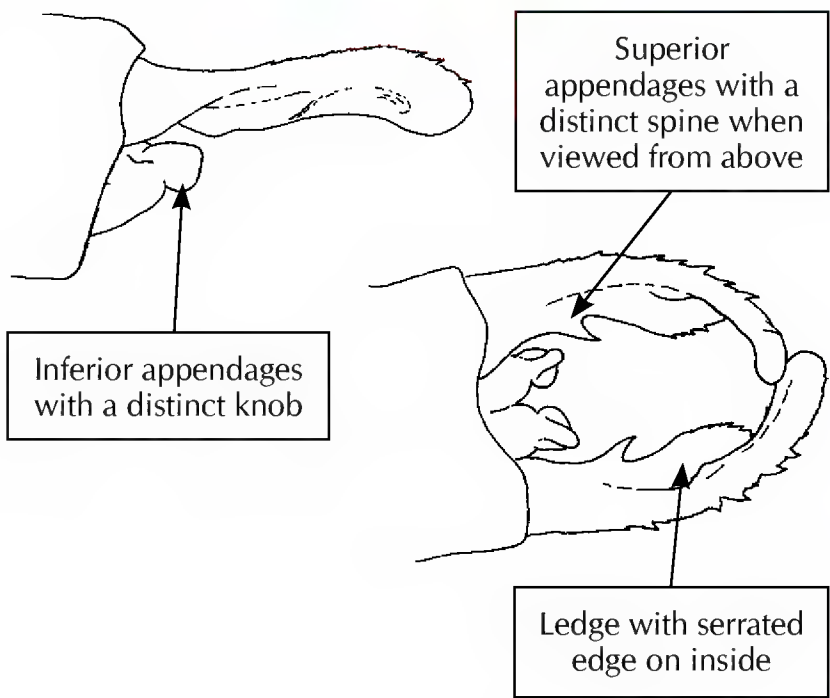
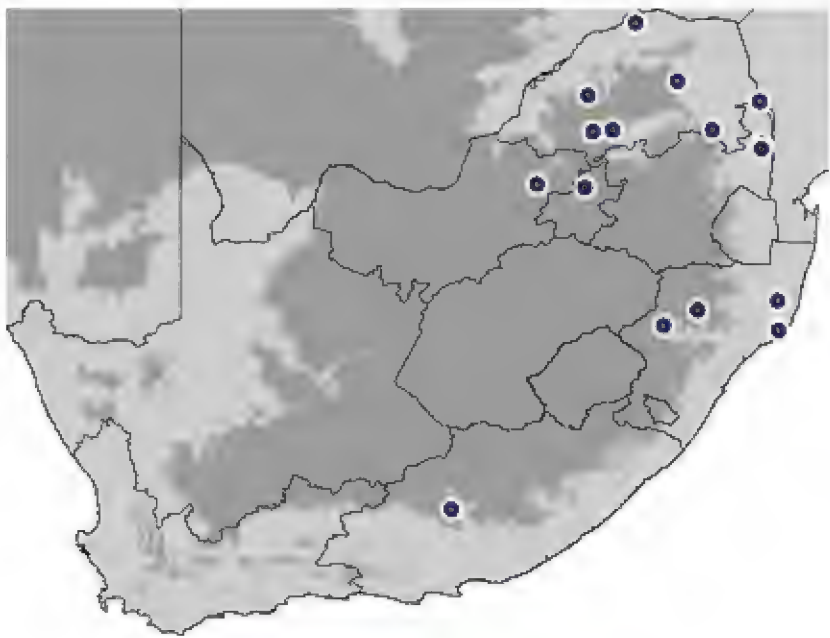
Hindwing length: 22.0–23.5 mm

Pallid Spreadwing (Pale Spreadwing)

Lestes pallidus Rambur, 1842

Appearance: The Pallid Spreadwing is medium sized, overall greyish and striped, but very variable in patterning and colour. Face dark grey, labrum and lower part of anteclypeus greenish blue. Head dark grey from above. Eyes conspicuously bright sky blue above, light grey below, with central grey flecks. Thorax weakly to strongly striped, stripes dark greenish grey, green in young males, becoming dark grey and bluish green with pruinescence with age. Wings clear. Pterostigmas dark grey with lighter border, becoming darker grey with age. Abdomen with dark, dorsal line along its length. Segments 1, 2, 7 and 8 mostly dark grey. Segments 3 to 6 mostly greenish grey in young males, greenish blue in older individuals. Segments 9 and 10 heavily pruinescent light grey. Female brownish with striped thorax like male, very little pruinescence; outer section of pterostigmas cream coloured.

Field notes: The Pallid Spreadwing has a very patchy and localised distribution in South Africa, having been recorded from several localities in the north of the country, from sea level in KwaZulu-Natal up to 1 000 m further north. There is a single record from the Eastern Cape. Range extends to East and West Africa. It lives in semi-permanent, shallow pools and pans, with short, emergent sedges and grasses, mostly in open savanna. It rests with outstretched wings on stems, usually close to the water surface. It stays in this position for long periods. Mating pairs are commonly seen. On the wing from late October through to late April.



- Medium-sized
- Striped thorax
- Changes colour with age and locality
- Segments 7 and 8 mostly black, segments 9 and 10 pruinescent blue

- A. Striped thorax
- B. Thorax blackish on top, blue at sides
- C. Thorax greenish brown on top, blue at sides
- D. Blue neck
- E. Segments 7 and 8 black with fine line along top
- F. Segments 9 and 10 pruinescent light blue

Body length: 40–42 mm

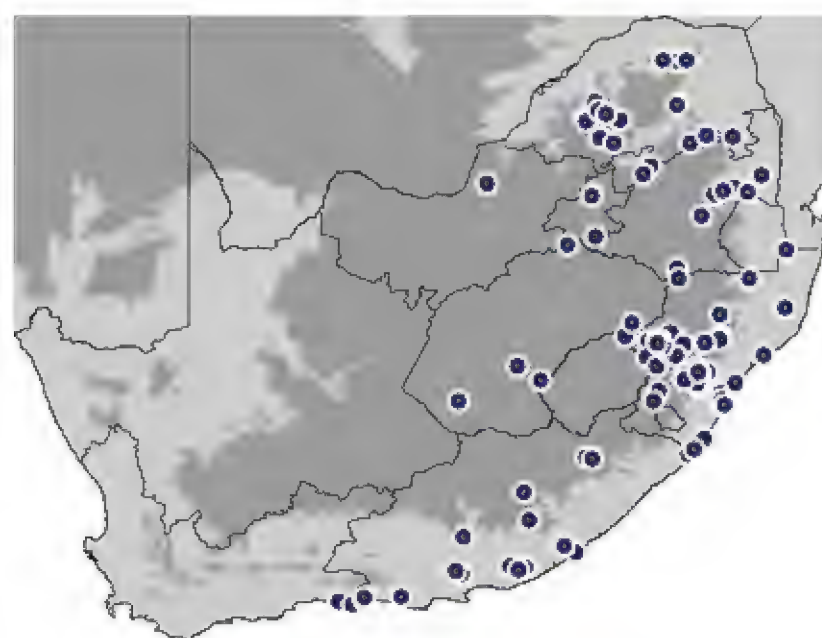
Hindwing length: 22.0–23.5 mm

Highland Spreadwing

Lestes plagiatus (Burmeister, 1839)

Appearance: The Highland Spreadwing is medium sized to fairly large, distinctly striped but highly variable in colour. Face dark grey, labrum greenish blue. Head dark grey from above, merging into blue and finally to deep yellow on back of head. Eyes bright blue above, greyish green below. Neck yellow in front, dark grey with heavy pruinescence at back. Thorax strongly striped dark grey, straw yellow and blue with pruinescence below; becomes overall light grey pruinescent in old age. Area between wing bases heavily pruinescent. Wings clear, becoming slightly smoky with age. Pterostigmas dark brown. Abdomen bright metallic green, becoming dull metallic green to bluish grey with age. Segments 9 and 10 pruinescent whitish grey. Female similar to male, mostly brown and green; eyes much browner with only a trace of blue.

Field notes: The Highland Spreadwing is most commonly found between 700 and 1 400 m elevation throughout the eastern half of South Africa. Occasionally, it occurs down to sea level but generally not close to the coast. It is very rare in the Western Cape. Its range extends to East and West Africa. Its habitat is grassy and bushy margins of dams, pools and sluggish reaches of rivers. It hangs from tall grasses, sometimes with several individuals on one stem. Mating pairs are common. On the wing from November to May, with occasional winter individuals.



Threat

LC

DBI

2

Superior appendages long and sharply bent

Superior appendages with a large spine

Inferior appendages short and rounded

End of superior appendages with a crossed-finger appearance



Young male

Mature male

- Distinctly striped thorax in green, brown, blue and white

- A. Blue neck
- B. White line narrow, blurred towards the front
- C. Superior appendages long and sharply bent
- D. Highly contrasting stripes on thorax
- E. Superior appendages with a crossed-finger appearance – visible through binoculars

Body length: 44–47 mm

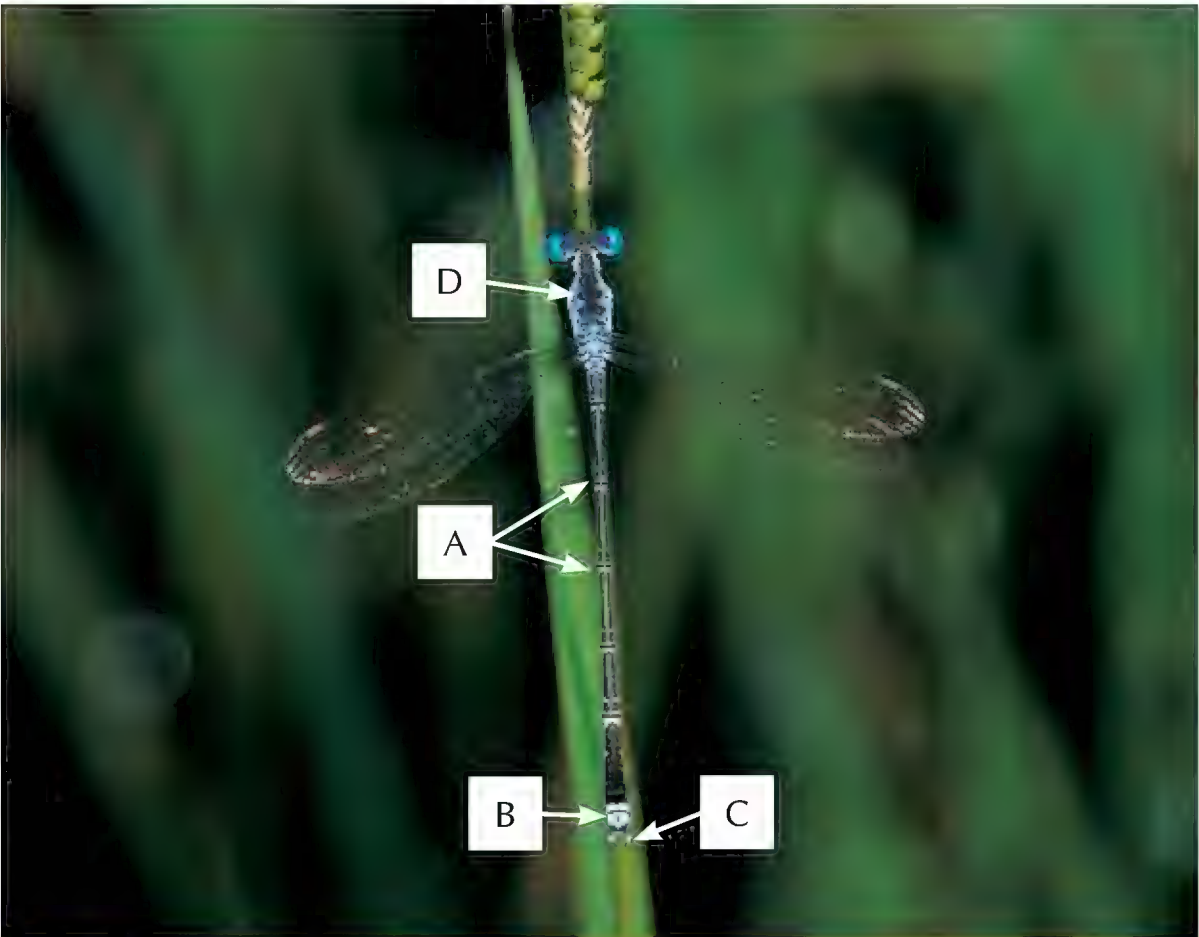
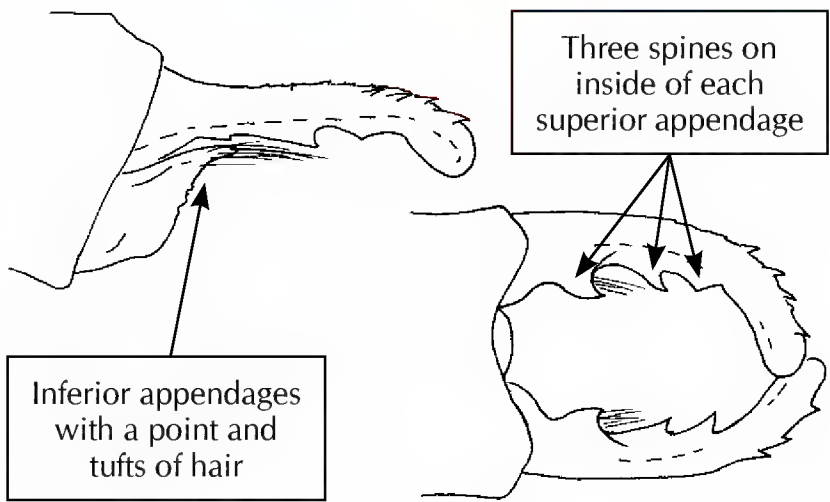
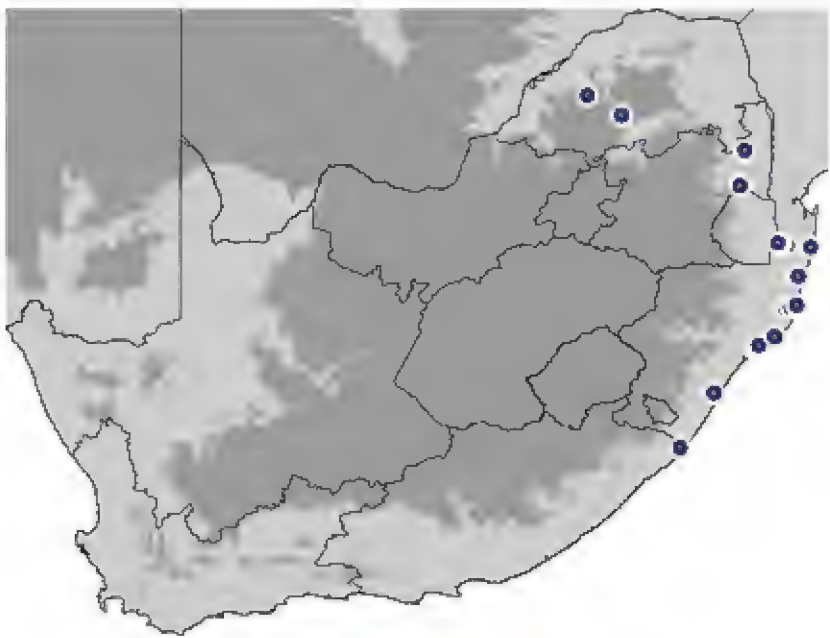
Hindwing length: 25.0–26.5 mm

Spotted Spreadwing

Lestes tridens McLachlan, 1895

Appearance: The Spotted Spreadwing is small to medium sized, greyish green to greyish blue, with a distinctive wavy oak leaf pattern on the top of the thorax. Face dark grey above, buff below; labrum bluish grey. Head dark grey in front, light grey behind from above. Eyes bright blue above, light greyish blue below. Neck dark grey, bordered with pruinescence. Thorax metallic green above, darkening to grey and blue with age; sides pruinescent pale grey with dark grey elongated spots or flecks. Area between wing bases highly pruinescent with dark flecks. Wings clear, becoming slightly smoky with age. Pterostigmas dark greyish brown. Segments 2 to 8 and first half of segment 9 dark grey above with partial yellowish rings; fine but distinct rings of blackish brown and white at segment boundaries. Second half of segment 9 and segment 10 pruinescent light grey. Superior appendages distinctly whitish with black bases and tips. Female similar to male, generally light brown, thorax speckled with dark brown spots.

Field notes: The Spotted Spreadwing is a localised species found mostly below 200 m elevation on the northern KwaZulu-Natal coastal strip. It also occurs in the Mpumalanga lowveld and in the Limpopo Province. Its range extends to East and West Africa. Its habitat is grassy and bushy margins of pools, dams and waterholes in hot areas. It hangs inactively from grass stems or twigs over water. The female is often seen close to the male. On the wing from November to May.



- Small
 - Oak leaf pattern on thorax
 - White rings on abdomen
 - Mostly white appendages
- A. White rings
B. White tail tip
C. Mostly white appendages
D. Oak leaf pattern

Body length: 35–38 mm

Hindwing length: 19.0–19.5 mm

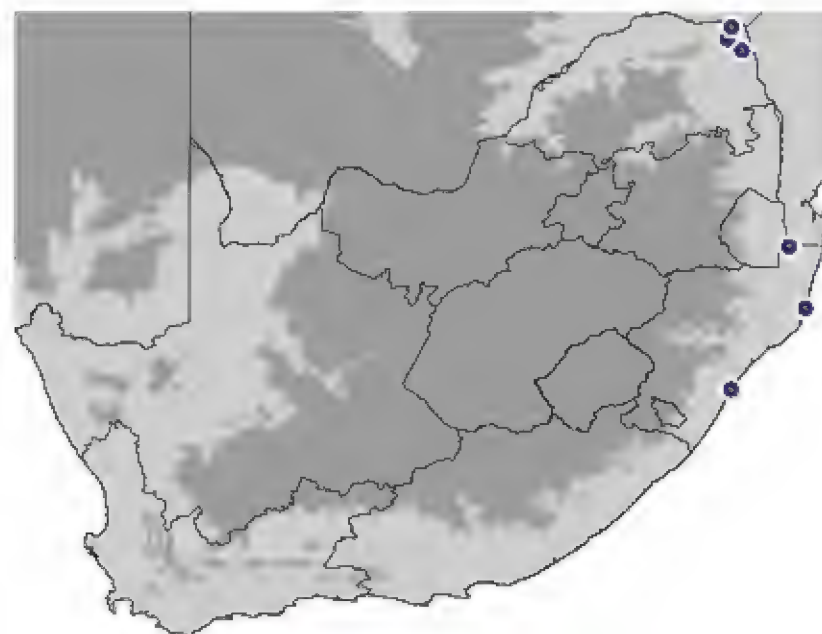


Sickle Spreadwing

Lestes uncifer Karsch, 1899

Appearance: The Sickle Spreadwing is medium sized to fairly large, greenish turquoise, with irregular blackish mottling, and large, whitish curved appendages. Face bright greenish blue. Postclypeus with black basal line. Head black with pale green and pale brown blotches from above. Eyes pale blue above, pale green below. Neck blotchy black, brown, green and greenish blue. Thorax dark green above with irregular pale green and greenish blue blotches; sides yellowish green to opal and pale turquoise with irregular blackish spots. Wings clear, becoming slightly smoky with age. Pterostigmas blackish, short and almost rectangular. Segment 1 light green with black margin and two small black dots. Segment 2 light green with blackish dorsal patch. Segments 3 to 7 greyish green with dark brown dorsal band, broken by fine yellow rings. Segments 8 to 10 black. Appendages long and curved inwards and downwards; distinctly whitish with black bases. Female pale brown with dark brown thoracic spots; abdomen dull green with brown longitudinal stripe.

Field notes: The Sickle Spreadwing is highly localised in northern KwaZulu-Natal and the north of the Kruger National Park. Its range extends to North and West Africa. Its preferred habitat is margins of pools with tall grasses and sedges next to thick bush or forest, also occurring around murky waterholes with adjacent bushes. It hangs from tall stems over water, but retreats into bushes when disturbed. On the wing from January to May.

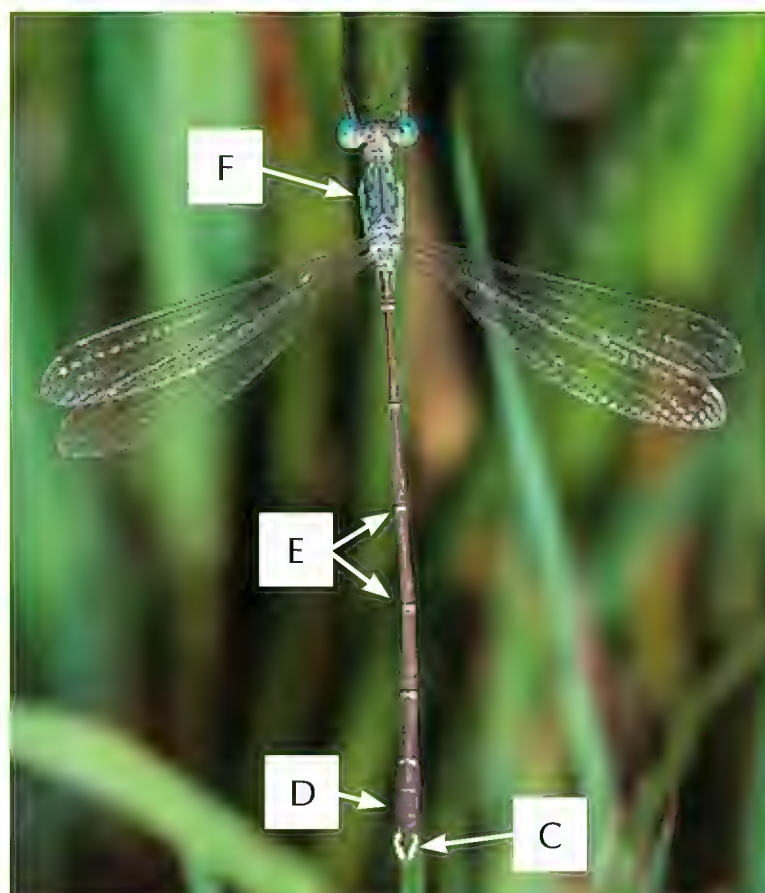
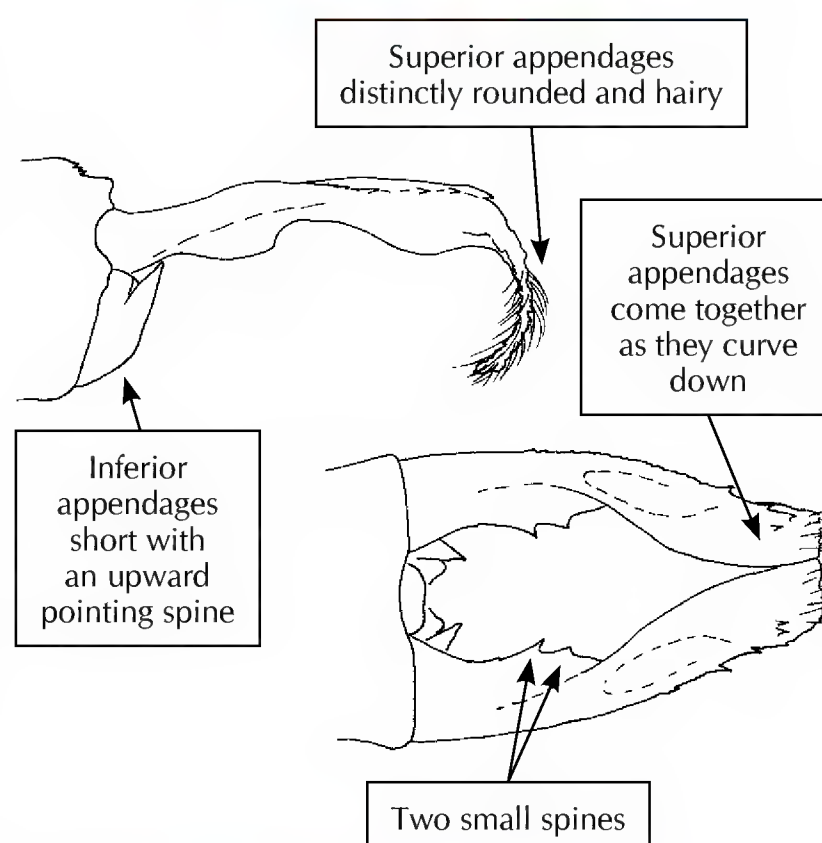


Threat

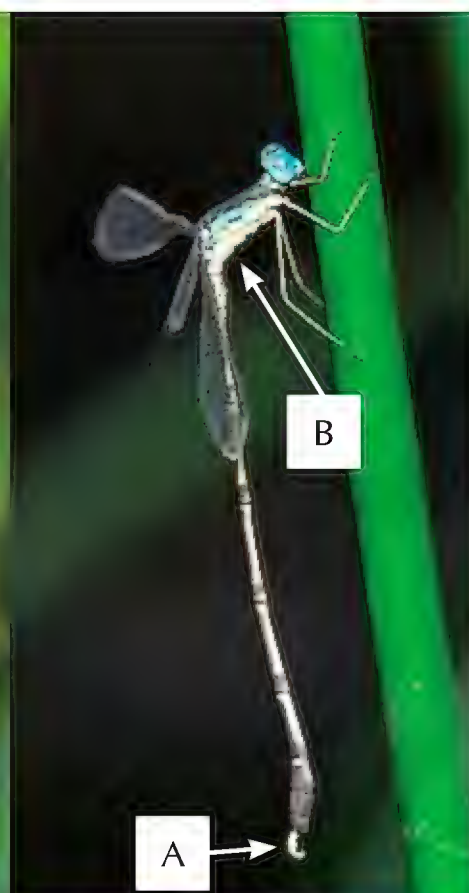
LC

DBI

5



Body length: 44–46 mm



Hindwing length: 24.0–24.5 mm

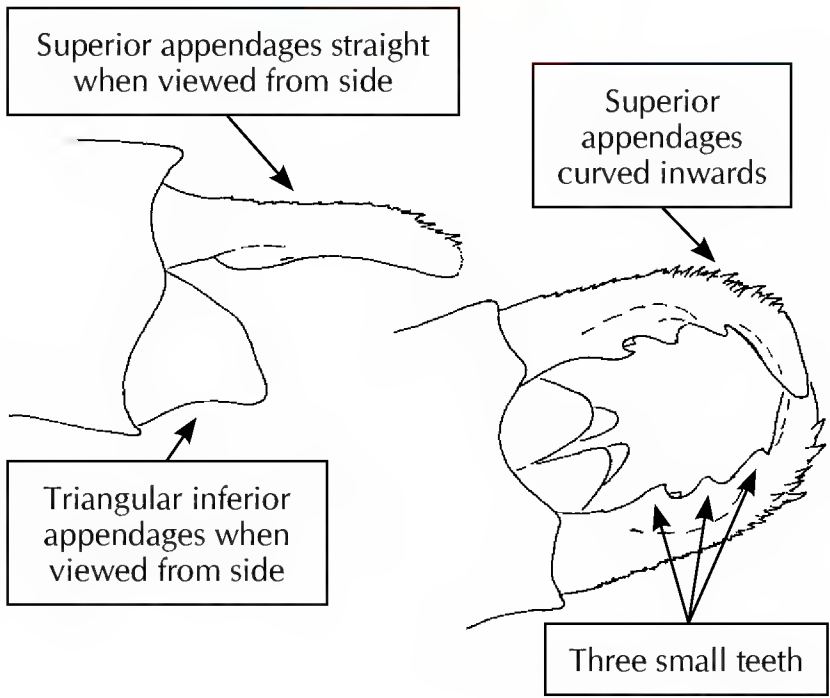
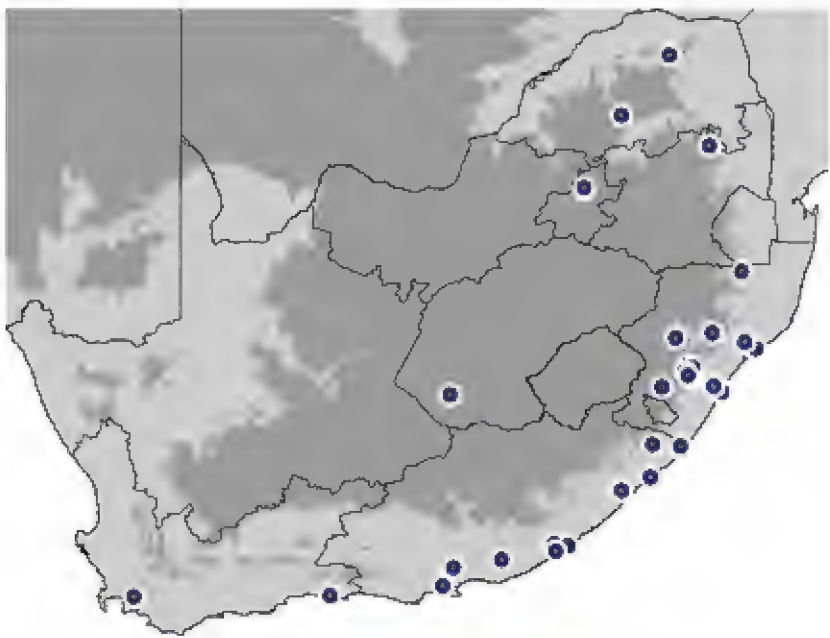
- Distinctly green thorax with dark zig-zag stripes
 - Conspicuous white, curved superior appendages
- A. Distinctly curved white appendages when viewed from side
- B. Pale underside
- C. White appendages
- D. Blackish segment 10
- E. Pale rings
- F. Green thorax with dark patterned stripes

Smoky Spreadwing

Lestes virgatus (Burmeister, 1839)

Appearance: The Smoky Spreadwing is fairly large, slender, dull metallic green, striped, and with distinctly smoky wings. Face greyish green; labrum sky blue; cheeks and mandibles light greyish blue. Head dark metallic green with brown scalloping along back from above. Eyes bright blue above, light greyish blue below with dark flecks. Thorax distinctly striped, multi-coloured, metallic green, yellowish brown and dark brown from above, sometimes with some distinct blue; sides greenish brown with light buff-coloured stripes; lightly pruinose in lower half. Wings distinctly smoky brown sometimes with pale indistinct blotches on tips. Pterostigmas light brown, surrounded by dark brown, becoming all dark brown with age. Abdomen dark metallic green with partial yellowish wings on segments 2 to 7 from above. Segment 9 is pruinose. Segment 10 and appendages blackish. Female stouter than male, reddish and blackish brown, also with striped thorax; underside of thorax buff; wings smoky but not as dark as male's.

Field notes: The Smoky Spreadwing is highly localised in all the moist forested areas of South Africa, but very rare in the Western Cape. It has been recorded up to 1 600 m elevation. Its range extends to North and West Africa. It occurs at pools with tall grasses, herbs and an abundance of bushes, near trees or in forests; sometimes also found along shady streams. It perches on tall grasses and herbs at pool edges, although it is sometimes seen away from water in the forest. Populations tend to appear and disappear very



readily as conditions change. On the wing between November and May but occasional winter individuals may be seen.

- Smoky wings
- Strongly striped thorax
- Distinct curved whitish stripe on lower thorax
- A. Striking curved whitish stripe on lower thorax
- B. Strongly striped metallic green, brown and cream thorax
- C. Pterostigmas with light centre
- D. Smoky wings
- E. Segment 9 white
- F. Black appendages

Body length: 45–49 mm

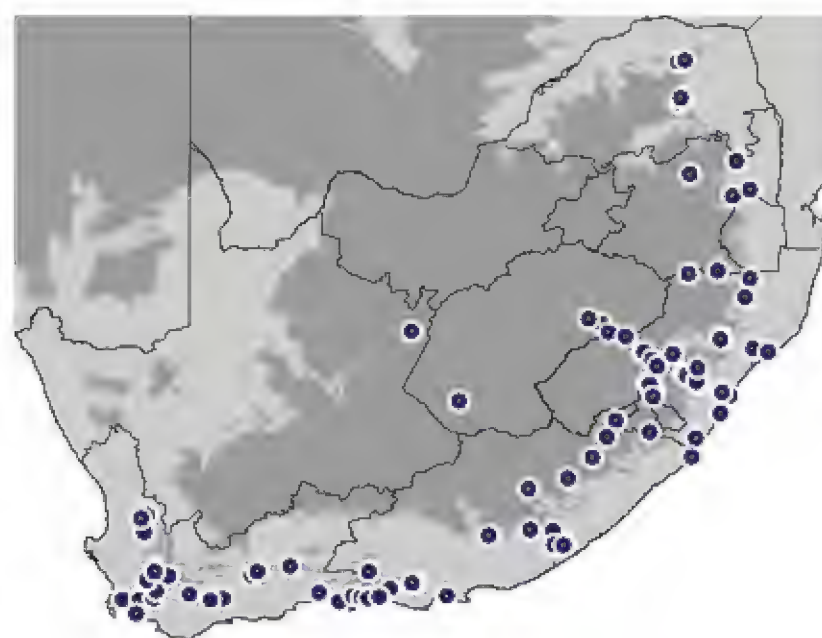
Hindwing length: 26.5–27.5 mm

Goldtail

Allocnemis leucosticta (Burmeister, 1839)

Appearance: The Goldtail is a striking, slender, mostly black species with a golden abdomen tip, smoky wings and white pterostigmas. Face light blue and black; labrum and cheeks are light greenish blue. Anteclypeus brown, postclypeus black, frons light blue. Head black from above. Eyes black above, blue below. Neck black with whitish bar in front. Thorax shiny black with pale blue stripes. Wings very smoky; pterostigmas white. Abdomen mostly black with fine whitish rings. Last half of segment 8 and all of segments 9 and 10, as well as appendages, sunflower yellow, sometimes tending to orange. Female with similar patterning to the male, wings not so deeply smoky, markings not so intense; tip of abdomen either pale yellow or pale blue.

Field notes: The Goldtail is endemic to South Africa, mostly in the montane areas from the Western Cape north to the Soutpansberg. Occasional individuals have been recorded at sea level, others have been recorded up to 2 000 m elevation. It lives in clear, shallow, forest streams (sometimes only a trickle), or open streams with clumps of bushes and trees. This striking damselfly can be seen flitting about in the sun flecks among branches overhanging streams, landing and perching in a conspicuous position. Its white pterostigmas are clearly visible in flight, as individuals hover to hold territories. On the wing from September to May.

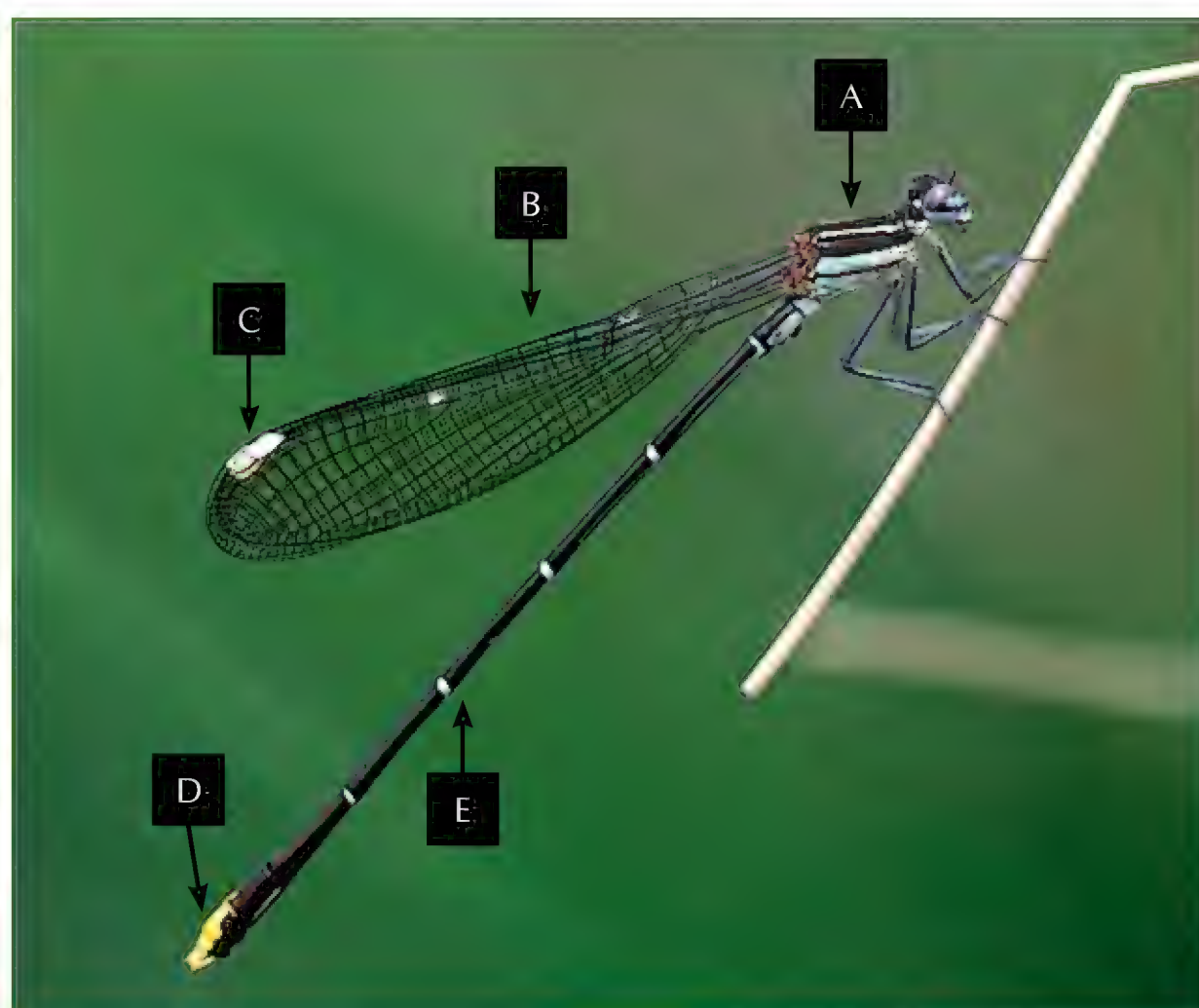
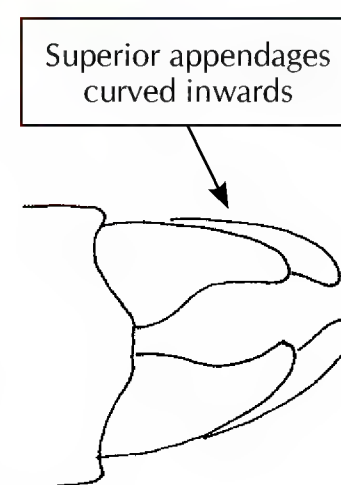
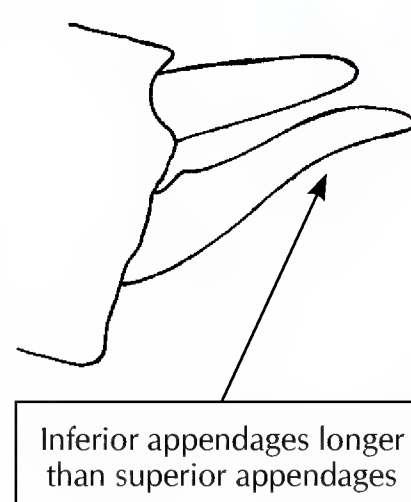


Threat

LC

DBI

5



- Black with yellow tail
- Smoky wings with white pterostigmas
- A. Light blue and black striped thorax
- B. Wings smoky
- C. White pterostigmas
- D. Tip of abdomen golden yellow to orange
- E. Black abdomen with white rings

Body length: 39–43 mm

Hindwing length: 22.5–24.0 mm



Spesbona

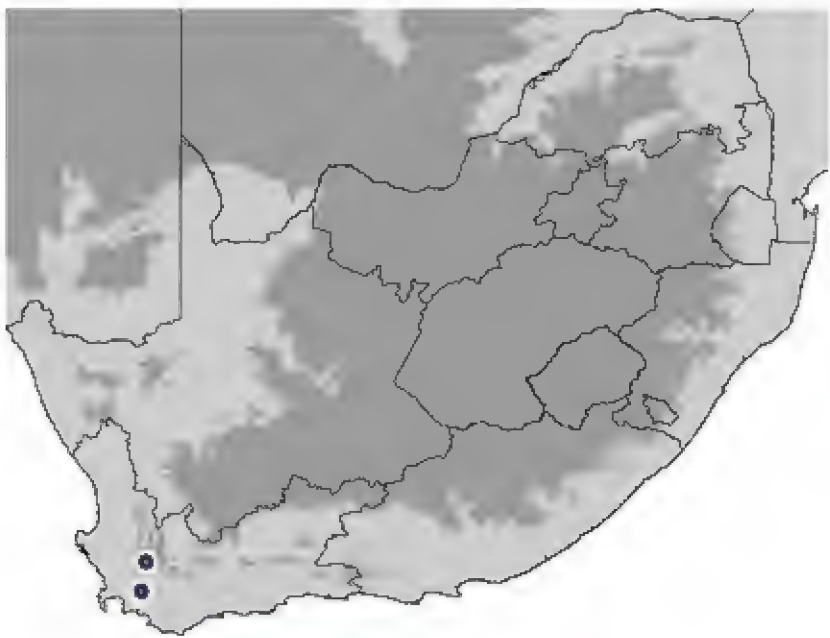
(Ceres Streamjack)

Spesbona angusta (Sélys, 1863)

Appearance: The Spesbona is a slender, dark blue and black damselfly, which looks like a Sprite when first seen, but with strikingly long and curved appendages. Face greyish blue and black. Anteclypeus and postclypeus dull black, postclypeus with long black hairs. Frons greyish blue with blackish margin against postclypeus. Head bright greyish blue with distinct matt black, horn-shaped marking from above. Eyes blackish above, greyish blue below. Neck black above, buffish grey patches on lower half of sides. Thorax with strong black line running along the middle, bordered on either side with bold blue stripes. Wings clear. Pterostigmas pointed, dark reddish brown with fine pale brown hind and outer margins. Abdomen greyish black, segments 1 and 2 slightly bluish. Last two thirds of segment 8 and all of segments 9 and 10 pale greyish blue. Segments 8 and 9 with two black dots each from above. Appendages greyish black, superior appendages short in comparison to long curved inferior appendages. Female similar to male, slightly stouter, blue areas can become whitish, eyes deep brown, wings can become slightly smoky, small bright blue saddle present on segment 1 which changes colour according to light conditions – in sunlight its colours are as described above, in early morning or when a dark cloud passes over it turns blackish as the blue areas darken. In low light conditions it has a superficial resemblance to a large Sooty Threadtail.

Note: this species was formerly known as *Metacnemis angusta*.

Field notes: First recoded in the 1920s at Ceres, the Spesbona was not seen again until 2003. It is one of South Africa’s rarest damselflies, having only been recorded from two localities at an elevation of about 400 m in the Western Cape.

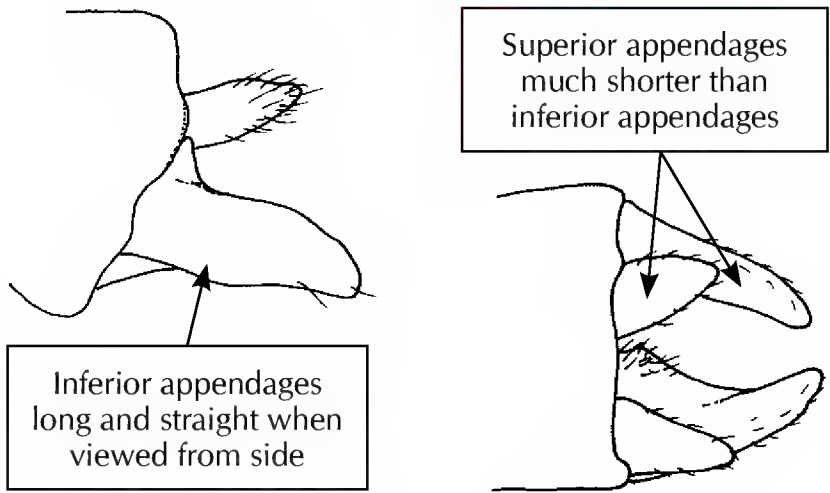


Threat

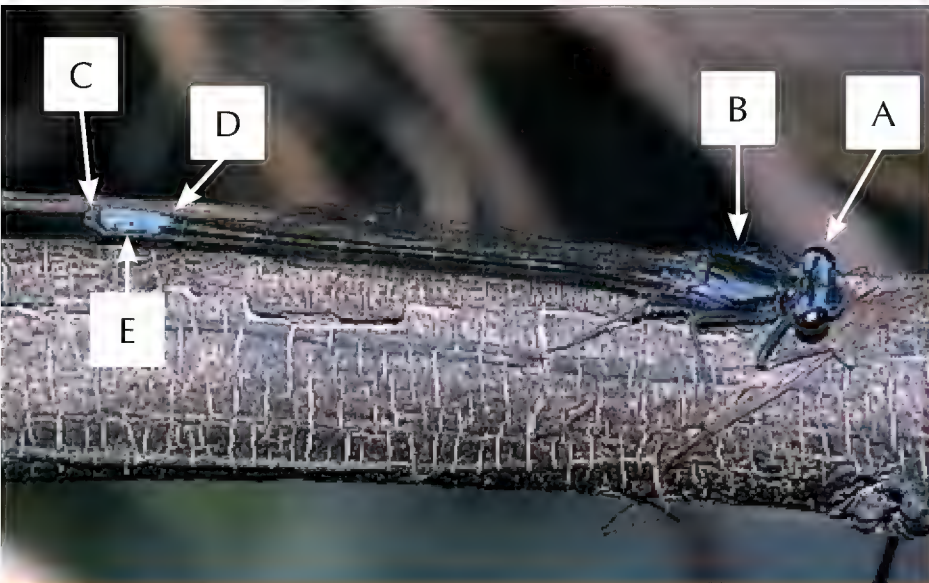
EN

DBI

9



It occurs in still reaches of river braids, where the pools contain several water weeds and are lined with bushy fynbos and overhanging vegetation. It has also been recorded at pools along small streams with an abundance of overhanging grasses. Males fly close to the water surface, regularly landing on a perch lengthwise, usually horizontally along twigs or reed stems. Females are often among the males perching over the water, but sometimes in bushes or among tall grasses away from the water. It is primarily an early season species, seen from late October through to January. Occasionally seen in late winter.



- Black horn-shaped marking on head
 - Distinct thoracic markings
 - Abdomen has distinctive tip
- A. Horn-like black markings on top of head
B. Thorax with wide black stripe on top, wide blue on sides, and a black stripe below
C. Inferior appendages much longer than superior appendages
D. Segment 7 with blue indent
E. Segment 8 with two small black dots

Body length: 29–30 mm

Hindwing length: 15.5–16.0 mm

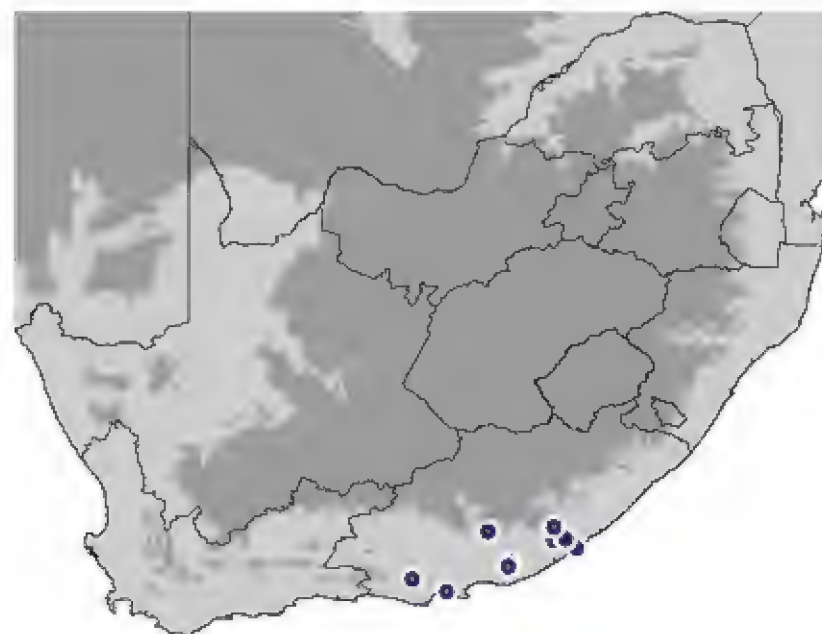


Blue Streamjack (Kubusi Streamjack)

Metacnemis valida Hagen in Sélys, 1863

Appearance: The Blue Streamjack is a striking and stout damselfly, entirely pale blue with thin black stripes on the thorax and conspicuous black rings on the abdomen. Face dull black with some brown. Labrum pale blue with central black spot. Anteclypeus light grey. Postclypeus grey with two side-streaks. Head black from above. Eyes greyish pale blue with a hint of mauve. Neck pale blue with wide central black stripe. Thorax pale blue, strongly marked with narrow black stripes. Wings clear with black veins. Pterostigmas light brown, almost square in shape. Segments 2 to 6 with striking incomplete black rings against light blue background. Segment 7 with black stripe running along top. Segments 8 to 10 with fine black rings against light blue. Segments 8 and 9 with small black spots on either side. Superior appendages long, black. Female's patterning similar to male's, brown replaces black, blue very dull; strong pale stripe running across side of thorax; head, eyes, neck, thorax and segments 9 to 10 greenish brown above.

Field notes: The Blue Streamjack is a very rare and localised species, only known from the foothills of the Eastern Cape. Its habitat is fast, shallow rocky streams bordered with bushes. It perches on boulders and dead twigs in the



Threat

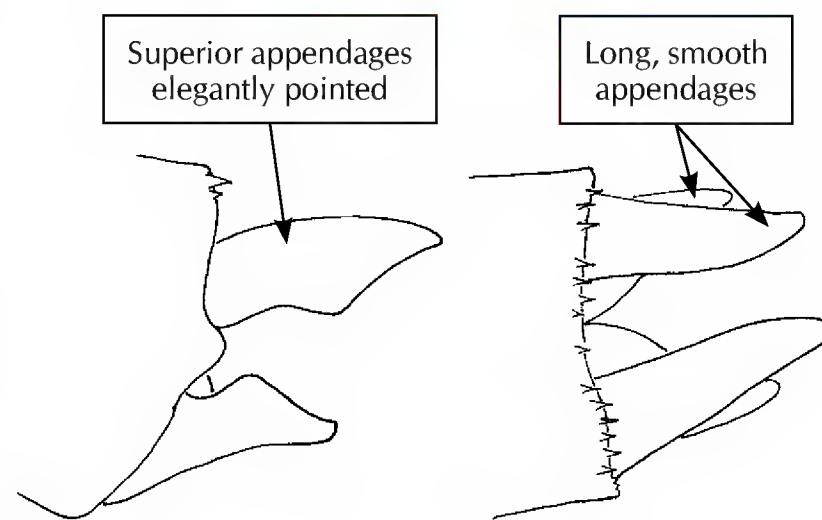
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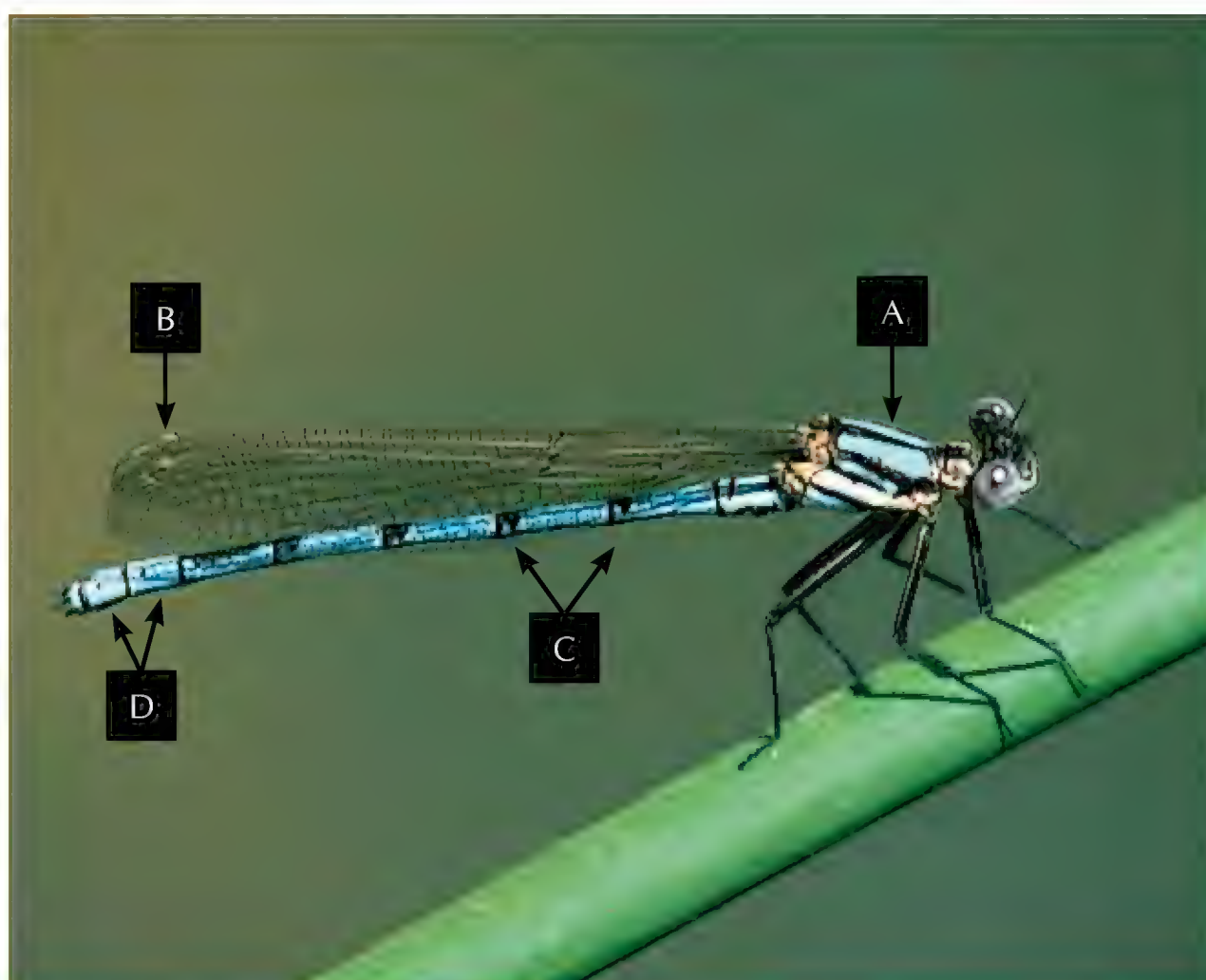
9

Superior appendages
elegantly pointed

Long, smooth
appendages



stream, logs and rushes, usually mid-stream. The female is often seen close to the male. On the wing from November to April.



- Fairly stocky
- All pale blue and black
- Light, short pterostigmas

- A. Thorax boldly striped in pale blue and black
- B. Pterostigmas light brown and very short
- C. Pale blue abdomen with black rings
- D. Segments 8 and 9 all pale blue except for a pair of small black spots on each side

Body length: 39–40 mm

Hindwing length: 26.5–27.5 mm

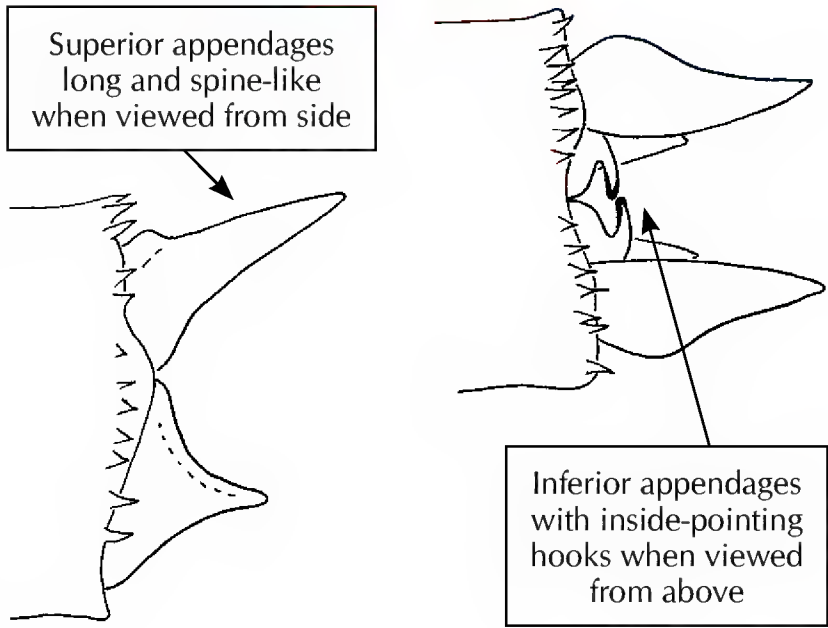
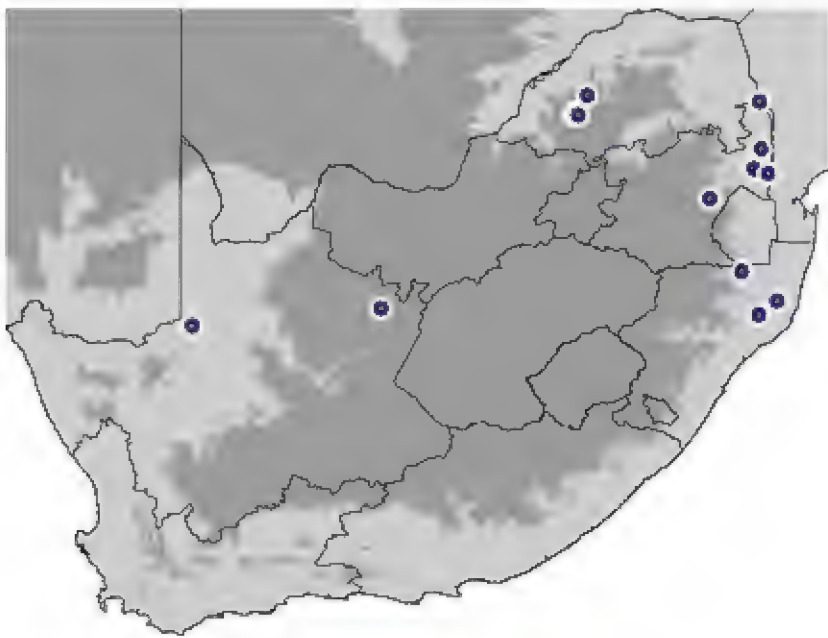


Savanna Riverjack (Riverjack)

Mesocnemis singularis Karsch, 1891

Appearance: The Savanna Riverjack is a fairly robust, distinctly all pruinescent pale blue damselfly with an almost dusty appearance. Face pruinescent pale grey. Labrum pale blue. Head pruinescent, pale blue with black band running across from above. Eyes bright, light cobalt blue. Neck and thorax highly pruinescent, pale whitish blue; legs also pruinescent. Wings clear with black veins. Pterostigmas brownish black, almost square. Abdomen robust, dark blue but made pale by dense pruinescence which becomes particularly strong and whitish on segments 8 to 10. Female light grey to greenish brown with fine dark brown lines on thorax and on top of head, pterostigmas and segments 9 to 10 light brown, some pruinescence on lower half of thorax, segments 1 and 2, and on the legs.

Field notes: The Savanna Riverjack is a localised species in hot savanna areas of the Northern Cape and other northern provinces. Its range extends to East and West Africa. It is associated with fast streams and rivers in hot savanna and semi-arid areas. When the water drops, it is confined to the remaining pools. It perches on reeds, sedges and grasses over flowing water, also on rocks. Female often seen alongside male. On the wing from December to May.



- All pruinescent whitish powdery blue
- Pterostigmas short and brownish black
- A. Body all pruinescent whitish powdery blue
- B. Short blackish pterostigmas
- C. Mid-section of abdomen darker than rest of body

Body length: 41–42 mm

Hindwing length: 26.5–27.5 mm

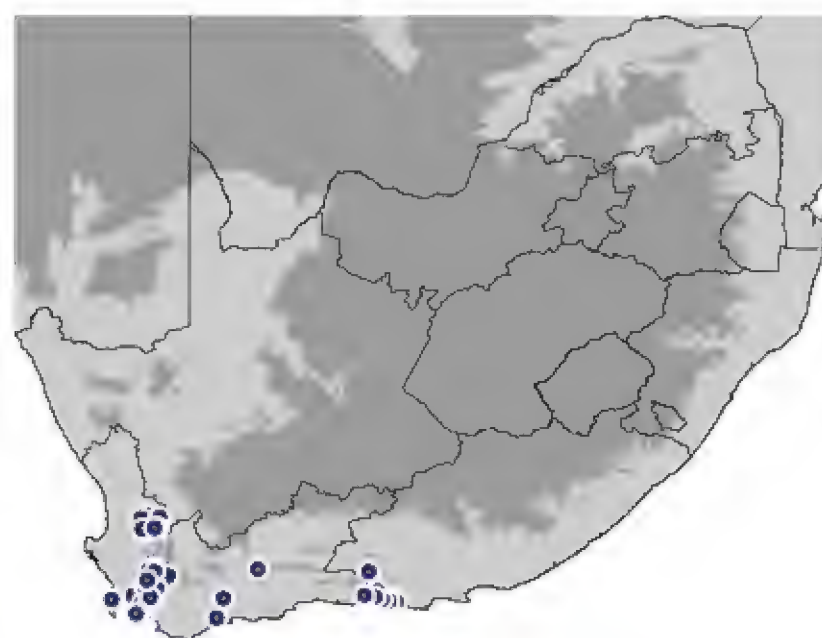


Sooty Threadtail

Elattoneura frenulata (Hagen in Sélys, 1860)

Appearance: The Sooty Threadtail is a small, distinctly blackish damselfly, with a greyish tip to its abdomen. Face black with strong black hairs. Head black from above, developing pruinescence with age. Eyes black above, bluish grey below. Thorax black above, greyish buff below; appears striped with pruinescence in old males. Wings clear. Pterostigmas dark brown or greyish dark brown with fine light brown borders. Abdomen black above and light brown below. Segments 9 and 10 light grey, pruinescent. Males occurring at high elevations of the Cederberg have a tendency to be blue rather than black, especially top of the head and thorax. Female slightly larger, more robust than male, overall dark brown, thorax faintly striped light and dark brown.

Field notes: The Sooty Threadtail is a localised damselfly, although common in places. It is endemic to the montane areas of the Western and Eastern Cape. It is usually found among tall grasses in association with bushes on the banks of clear mountain streams and small rivers with sluggish reaches and pools. It is usually fairly well-hidden among the tall grasses and other vegetation, but can be seen cruising among them when disturbed. On the wing from November to May.

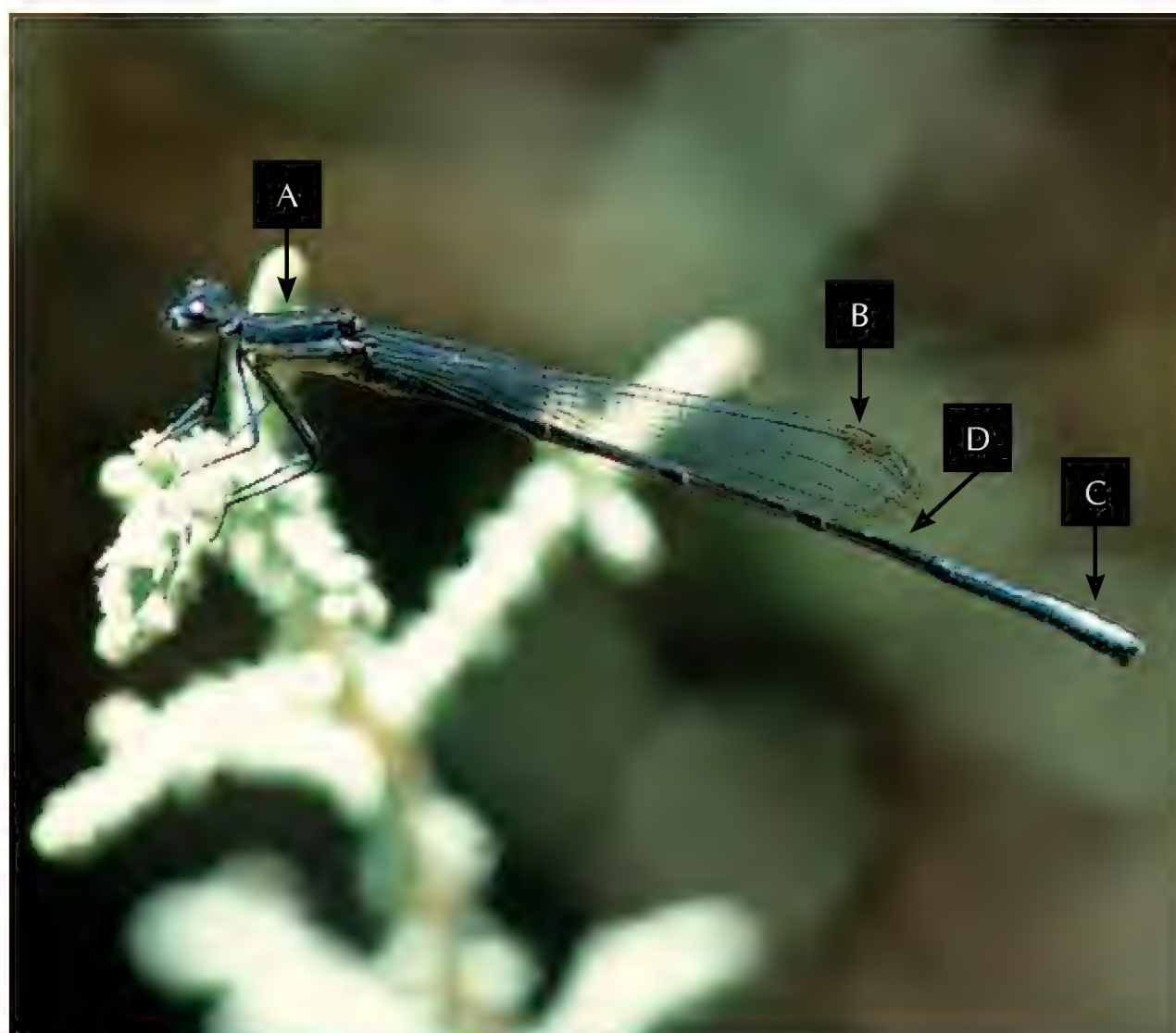
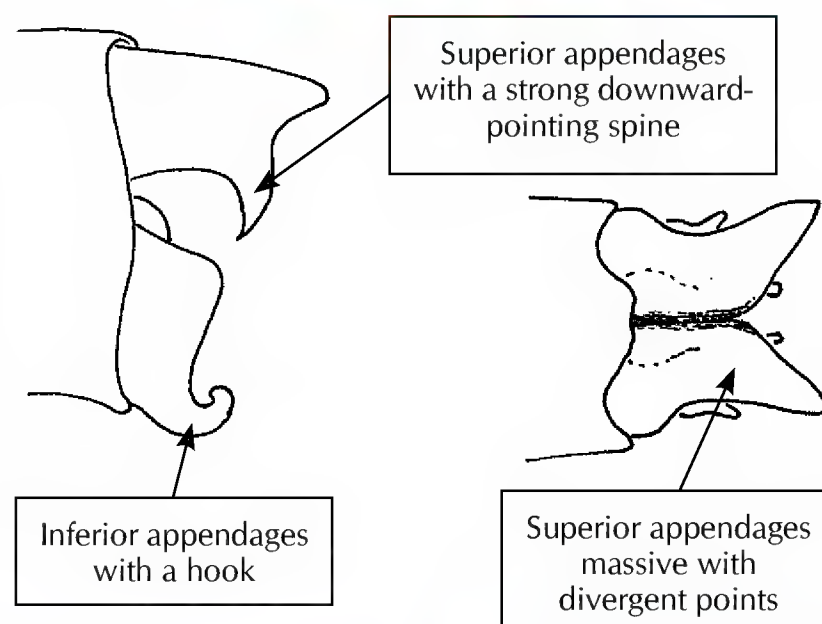


Threat

LC

DBI

5



- Small and threadlike
- Blackish with a pale tail

- A. Thorax blackish above
- B. Pterostigmas dark with pale border
- C. Segments 9 and 10 light grey and pruinescent
- D. Abdomen black above

Body length: 33–35 mm

Hindwing length: 18.5 mm

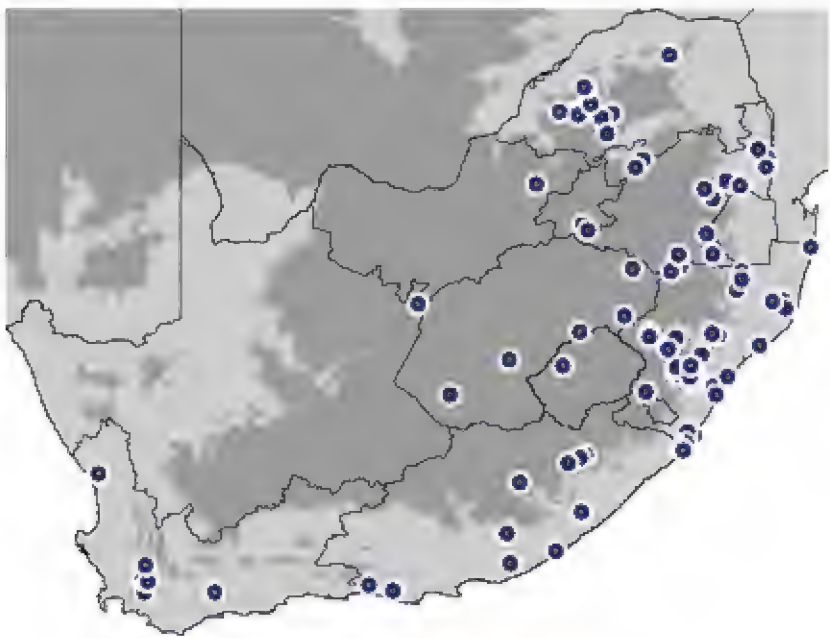


Common Threadtail

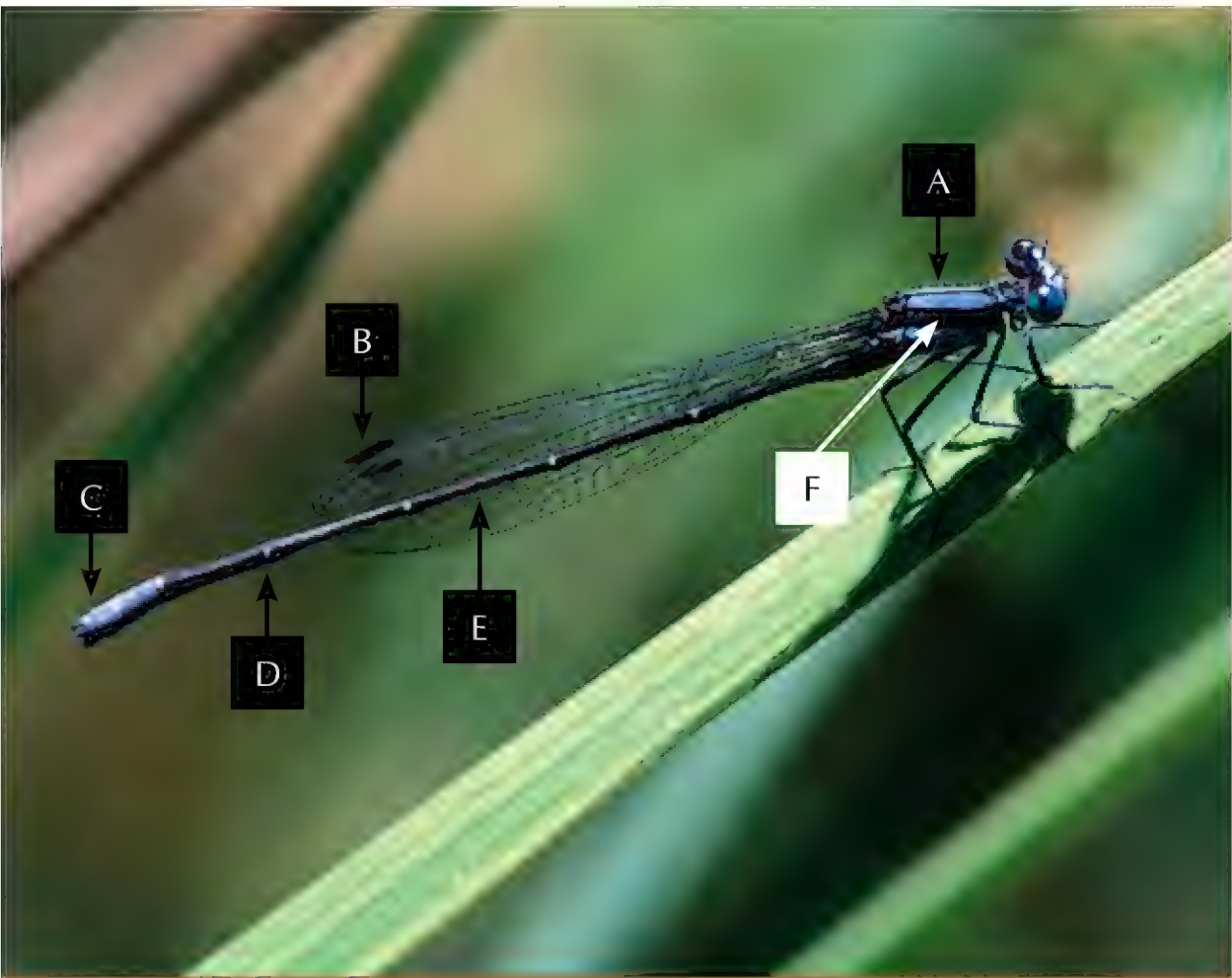
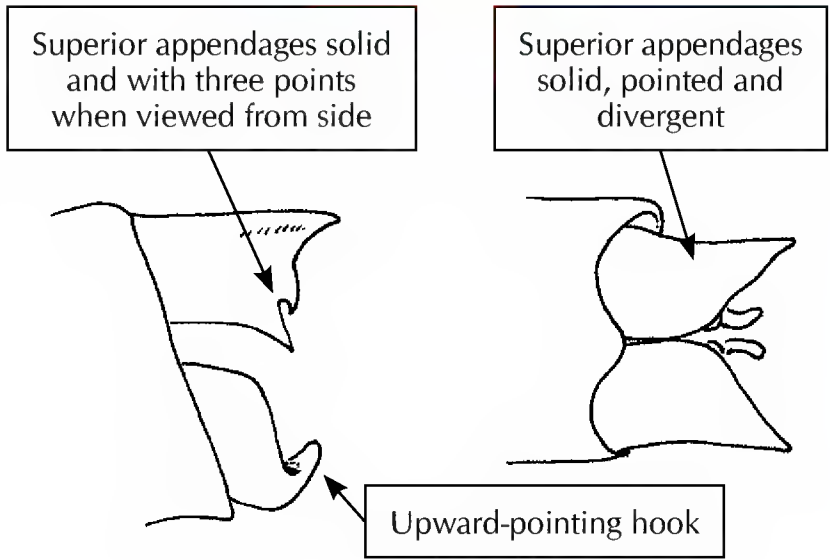
Elattoneura glauca (Sélys, 1860)

Appearance: The Common Threadtail is small and slender, and strongly striped in bluish grey and black. Face dark grey with a strong greyish white pruinescence. Labrum blackish. Head greyish black from above. Eyes blackish brown above, turning turquoise midway, green below; dark ring present midway. Neck pruinescent greyish blue. Thorax distinctly pruinescent greyish blue from above with a distinctive black stripe on the shoulder. Area between the wing bases with small light brown blotches. Wings clear. Pterostigmas dark brown with fine light brown borders. Abdomen dark bluish black with fine indistinct buff rings. Segments 1 and 2 pruinescent above, segments 8 to 10 heavily pruinescent greyish white. Female slightly larger and more robust than male, patterning similar with brown replacing the bluish grey, shoulder stripe is buff.

Field notes: The Common Threadtail occurs north to Kenya and the Democratic Republic of the Congo. In South Africa it is abundant and widespread across much of the country, although largely absent from the Karoo and localised and rare on the coast and in the lowveld. It occurs up to 1 700 m in elevation and its habitat is tall grasses beside sluggish reaches of rivers and occasionally pools, marshes and dams. It is generally reluctant to fly and is most often seen perching on grass stems. Its flight is slow and hovering, covering just a few centimetres. On the wing from October to May.



Threat	DBI
LC	1



- Small, slender, bluish grey and black
- Distinctive thoracic patterning
- A. Blue on top of thorax
- B. Pterostigmas dark brown
- C. Light grey pruinescent tip
- D. White spots
- E. Black abdomen
- F. Strong black side stripe

Body length: 34–35 mm

Hindwing length: 18.0–18.5 mm

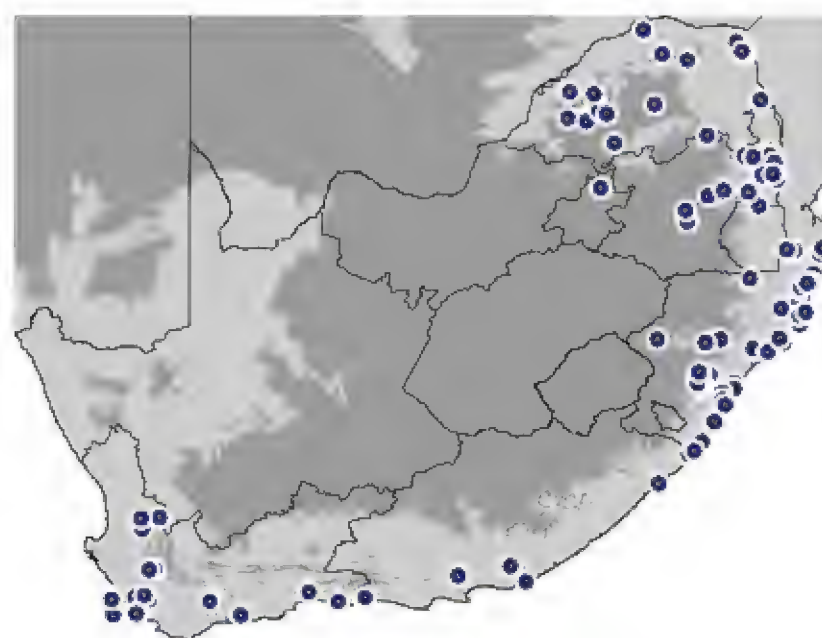


Common Citril

Ceriagrion glabrum (Burmeister, 1839)

Appearance: The Common Citril is medium sized, all orange, with two minute projections on segment 10. Face and head dull orange. Eyes greenish with dark grey cap. Thorax orange, darker above, lighter below with a greenish tinge, particularly below. Wings clear. Pterostigmas dark rusty brown with fine pale yellow borders. Abdomen bright orange. Segment 10 with two small, distinct backward-pointing projections on hind margin. Female similar to male, slightly more robust, duller, browner and greener.

Field notes: The Common Citril is widespread in South Africa around the southern and eastern coastal rim and into middle elevations and savanna in the north. Its range extends to East and West Africa, and also to Madagascar, Seychelles and the Mascarenes. While mostly occurring at low elevations, it is occasionally seen up to 1 000 m elevation. It occurs around pools, marshes and sluggish reaches of rivers with an abundance of tall grasses, sedges and reeds. It occasionally occurs in open habitat with trees nearby, and sometimes even in thick forest. It can be seen resting and hovering among the tall grasses and other vegetation sometimes many metres from the water's edge. The female is often in association with the male, and mating pairs are common. On the wing from October to May.



Threat

LC

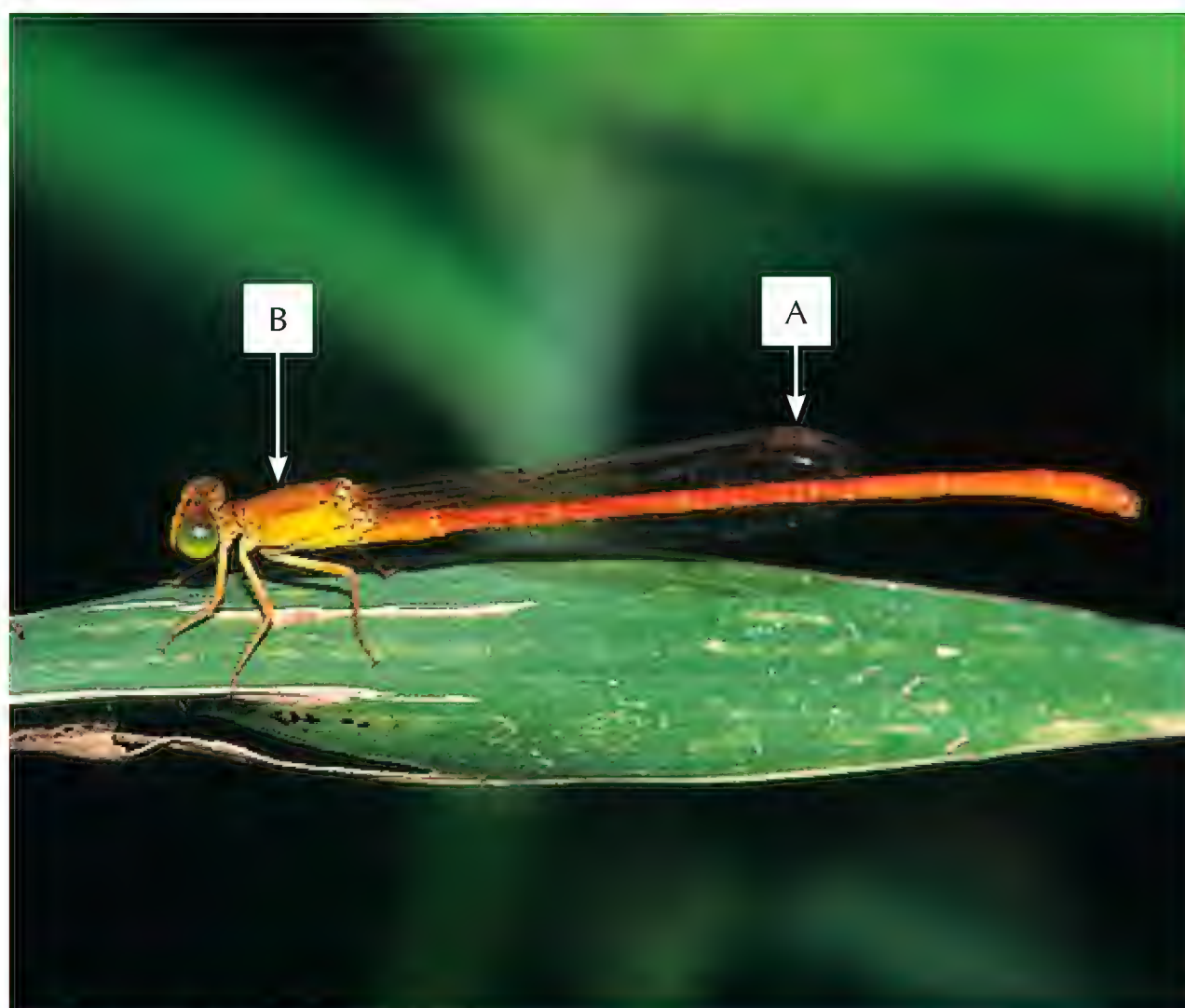
DBI

0

Superior appendages short and gently downcurved

Long cow horn-like inferior appendages when viewed from above

Projections on hind margin of segment 10



- All orange, and common throughout many parts of South Africa

- A. Pterostigmas dark rusty brown
B. Thorax light on top

Body length: 39–41 mm

Hindwing length: 20.0–20.5 mm

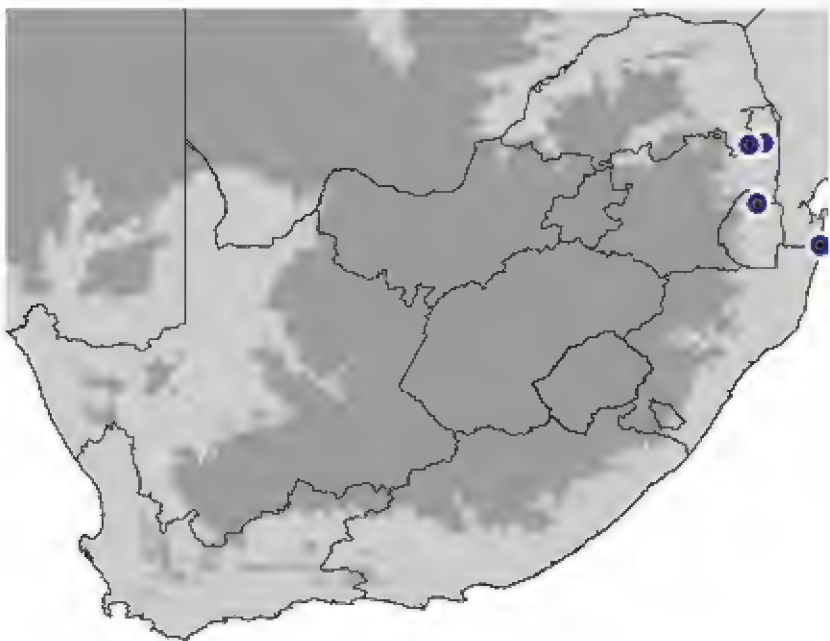


Suave Citril

Ceriagrion suave Ris, 1921

Appearance: The Suave Citril is medium sized and all orange. Face and head orange from above. Eyes dark green above, yellowish below. Thorax brownish orange above, light orange on sides. Wings clear to slightly smoky. Pterostigmas reddish brown. Abdomen bright orange, margin of segment 10 lacks projections. Female similar to male, more robust, duller and brownish.

Field notes: The Suave Citril is highly localised, having only been recorded in the northeast of South Africa and Swaziland. Its range extends to North and West Africa. It occurs at pools, water-holes and marshes particularly in flooded areas. It rests and flits among the tall grasses and sedges. On the wing from December to May.

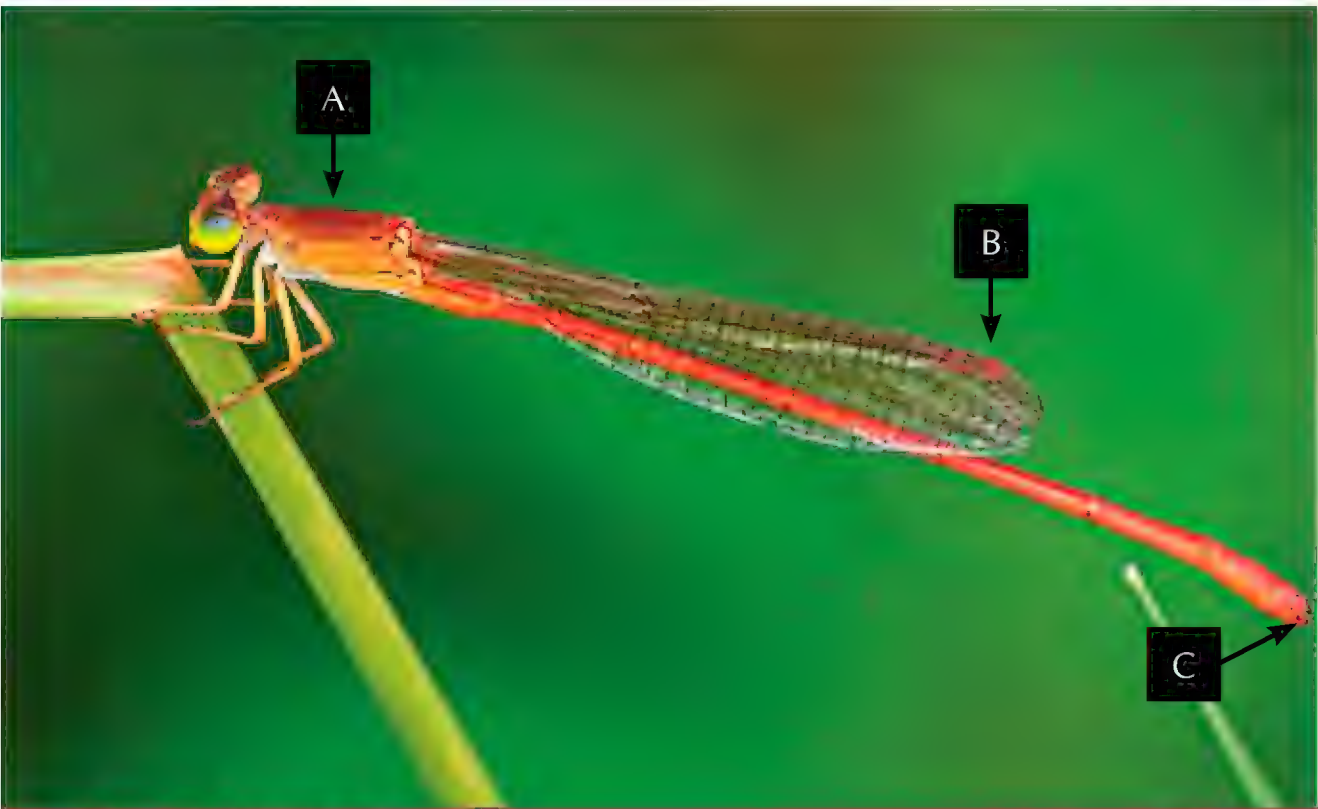
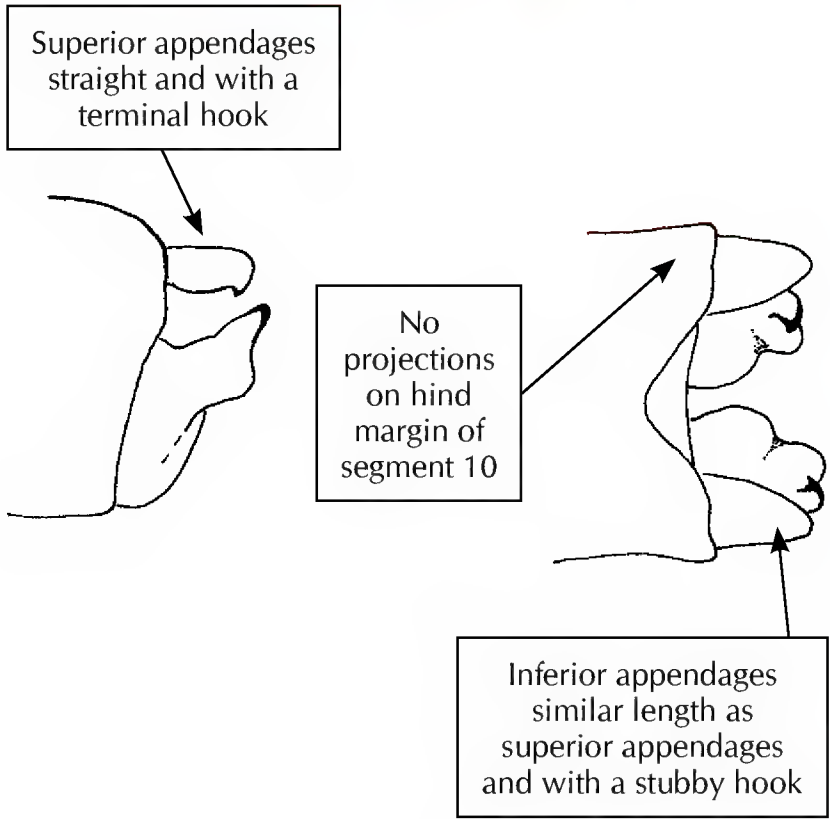


Threat

LC

DBI

7



- All orange, and rare in South Africa, only in the northeast.
- A. Thorax dark on top
- B. Pterostigmas reddish brown
- C. No projections on segment 10

Body length: 39–41 mm

Hindwing length: 20.0–20.5 mm

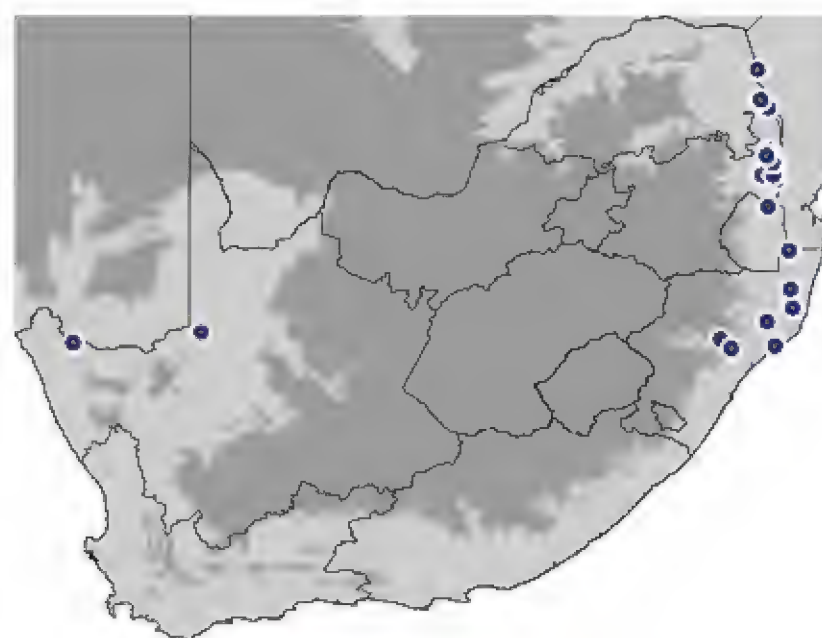


Acacia Sprite (Green-naped Sprite)

Pseudagrion acaciae Förster, 1906

Appearance: The Acacia Sprite is medium sized with a rusty face and thorax. Face rusty orange-red with fine black tracery. Head rusty red in front, distinctly light green behind from above; back of head distinctly green. Eyes orange red in front, greenish blue behind, dark brown cap present on the back half. Neck bluish green with black tracery. Thorax rusty orange-red above, light greenish blue at sides and below. Wings clear. Pterostigmas reddish brown. Segments 2 to 7 lime green with black dorsal lines and black rings. Segments 8 and 9 bright pale blue with partial black rings. Female dull brown and black.

Field notes: The Acacia Sprite is localised below 300 m in the Northern Cape, the Mpumalanga lowveld and northern KwaZulu-Natal. It occurs north to Tanzania. Its habitat is hot lowveld savanna rivers with grassy margins and it is particularly common along the edges of the biggest rivers. It perches on emergent sticks and vegetation in the main current. When disturbed, it flies low and rapidly over the water surface, regularly returning to a favoured perch. On the wing from November to May.

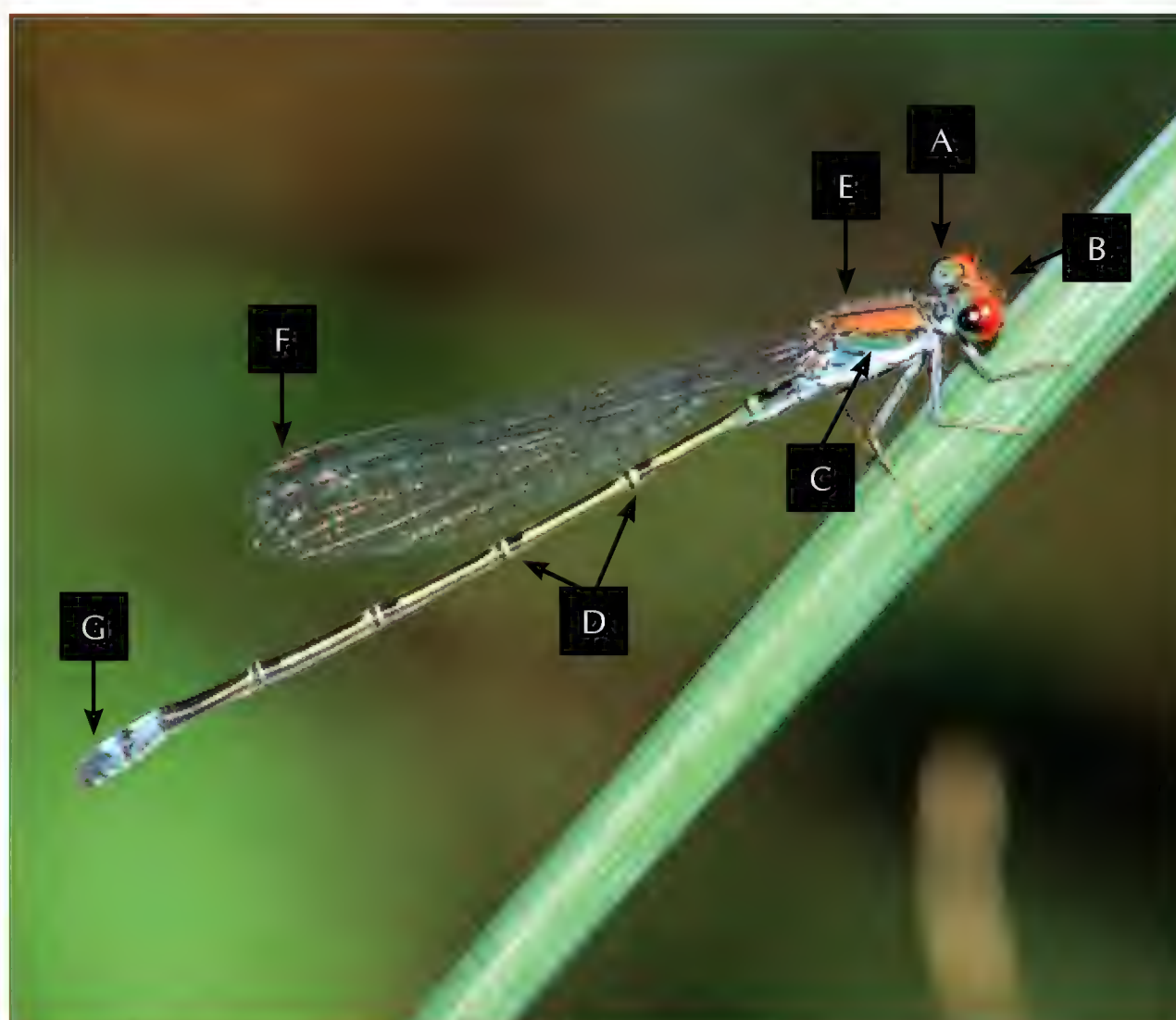
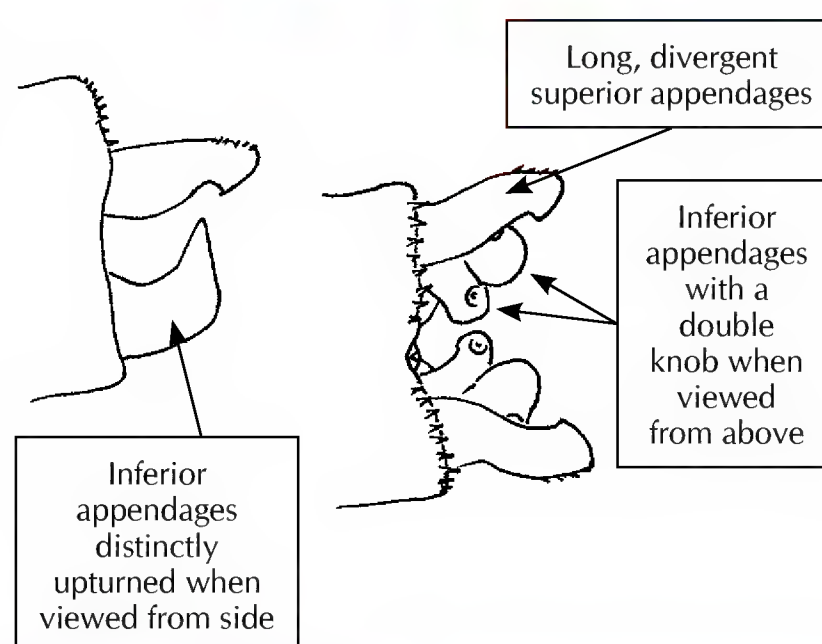


Threat

LC

DBI

3



- Rusty face and top of thorax
- Green back of head and sides of thorax
- A. Green back of head
- B. Rusty face
- C. Green sides to thorax
- D. Black abdomen rings
- E. Rusty top of thorax with thin black lines
- F. Pterostigmas reddish brown
- G. Blue tail with black marks on top of segments

Body length: 38–39 mm

Hindwing length: 18.5–19.0 mm

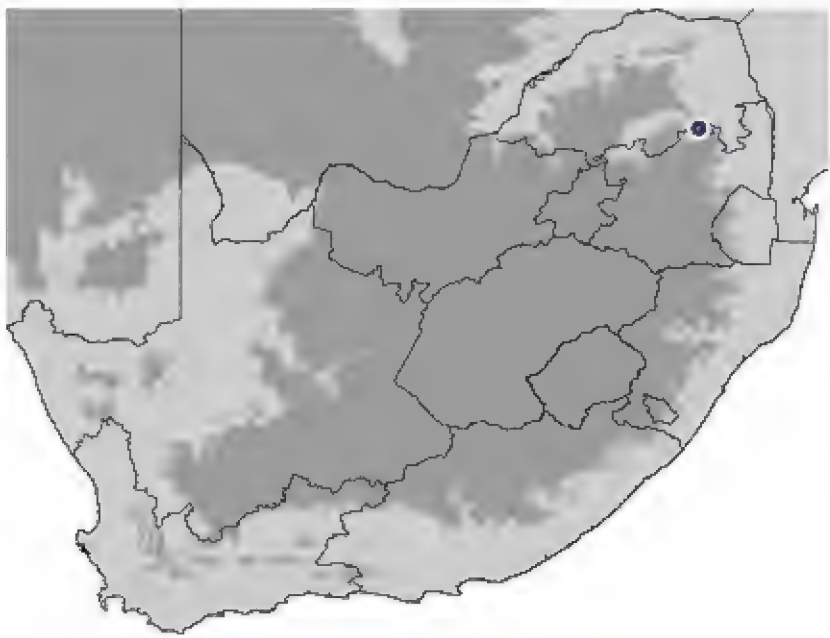


Assegai Sprite (Spearhead Sprite)

Pseudagrion assegai Pinhey, 1950

Appearance: The Assegai Sprite is small, all bright blue and black. Face light sky blue and black. Labrum light blue with small central black spot. Anteclypeus brownish pale blue, postclypeus black. Frons blue in front with a black half-moon marking above, which connects with black of top of head. Head black with isolated blue postocular spots from above. Eyes pale blue, pinkish below. Neck black above with a blue spot on each side, blue below. Thorax black above bordered by brownish blue stripes, sharply-defined narrow black stripe present on each side. Wings clear. Pterostigmas pale brown, almost buff. Segment 1 sky blue with black basal spot. Segment 2 blue with distinct spearhead-shaped black marking. Rest of abdomen light blue with black line running along top up to hind margin of segment 7. Segments 8 to 10 bright sky blue. Female slightly more robust than male, similar patterning but blue is replaced by light brown, pterostigmas pale.

Field notes: The Assegai Sprite is only known from the Limpopo Province. It also occurs in Botswana, Zambia and Zimbabwe. Its habitat is sluggish streams and pools with an abundance of lilies and reeds in dry savanna. It is usually seen sitting on lily pads, but will flit close to the water surface when disturbed. On the wing from December to April.

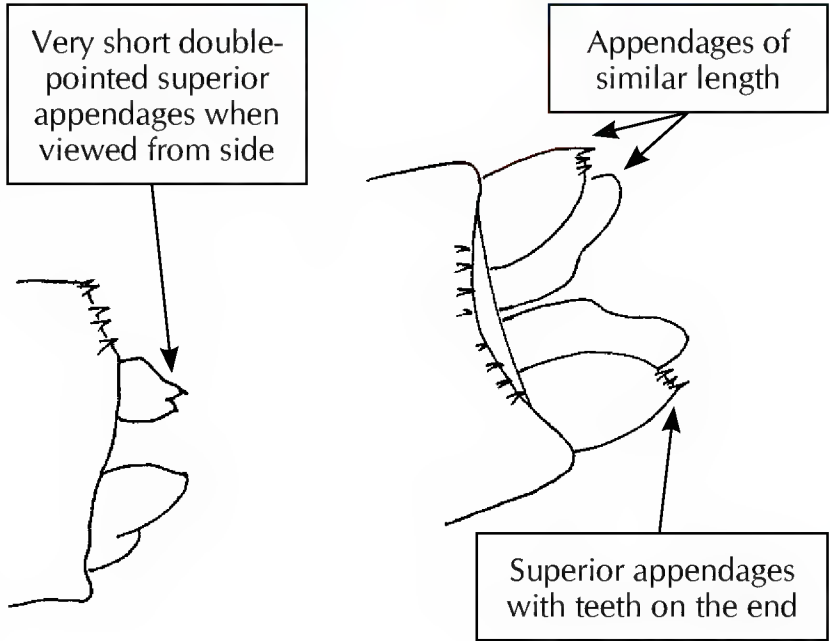


Threat

LC

DBI

5



- All bright blue and black
- Isolated blue postocular spots

A. Pterostigmas pale brown to buff

B. Top of thorax black

C. Black side spots

D. Isolated blue postocular spots

E. Spearhead-shaped mark on segment 2

Body length: 30–31 mm

Hindwing length: 16.5–17.0 mm

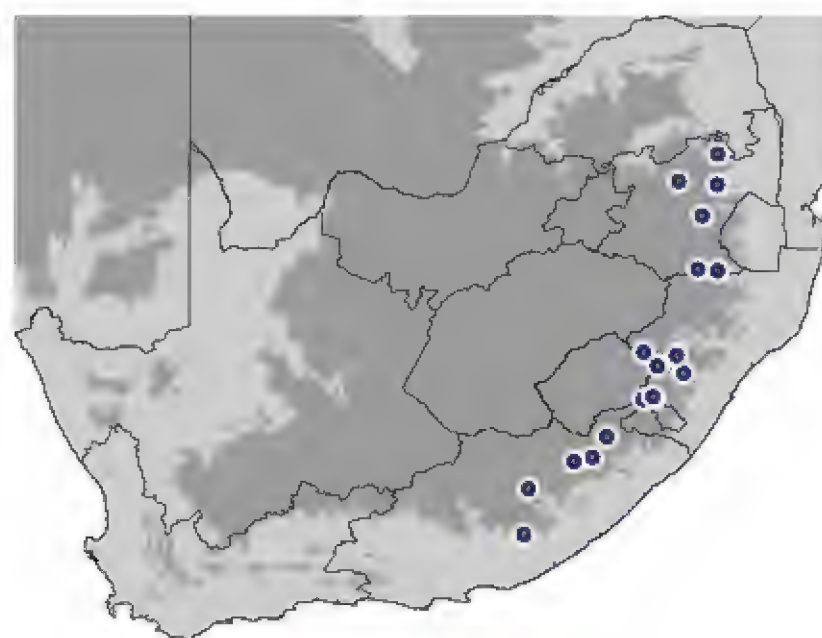


Springwater Sprite

Pseudagrion caffrum (Burmeister, 1839)

Appearance: The Springwater Sprite is small, with a deep blue body and bright rusty red pterostigmas, no postocular spots and a yellow face. Face sunflower yellow, postclypeus black. Head black from above, no postocular spots but faint roundish markings sometimes present on young males. Eyes black above, greenish yellow below. Neck and thorax shiny deep blue with pale pruinulent sides. Wings clear. Pterostigmas noticeably bright rusty reddish brown. Abdomen without tail tip, dark blue above, yellowish green below, can become light grey pruinulent with age. Female more robust than male, head and thorax straw brown to rusty red and black, abdomen dark brown above with pale mauvish blue markings on segments 9 and 10, light brown on the sides.

Field notes: The Springwater Sprite occurs between 1 400 and 2 200 m elevation from the Amatola–Winterberg of the Eastern Cape through to the KwaZulu-Natal and Mpumalanga Drakensberg. It occurs at small and shallow rocky feeder streams with riffles, and occasionally along rivers at lower elevations. Its habitat is dense grasses and sedges along soggy banks. This species can be difficult to see, as it rests cryptically among grass and sedge stems. Where grasses and sedges are at the water's edge, it rests on them close to the water surface. It is generally reluctant to fly. The female is often with the male. On the wing from October to May.

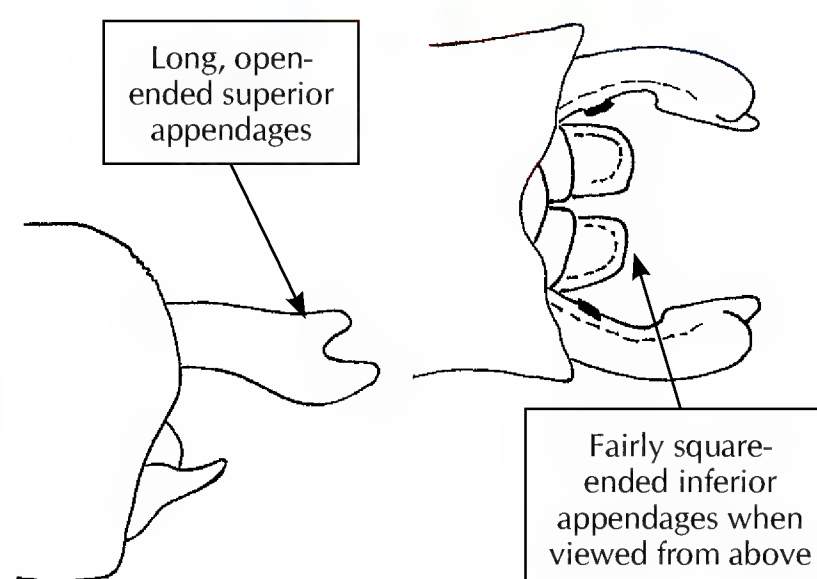


Threat

LC

DBI

5



Body length: 33–34 mm

Hindwing length: 20.5 mm

- Small in size
- Thorax and abdomen single, solid blue colour when viewed from above
- Yellow face
- No postocular spots

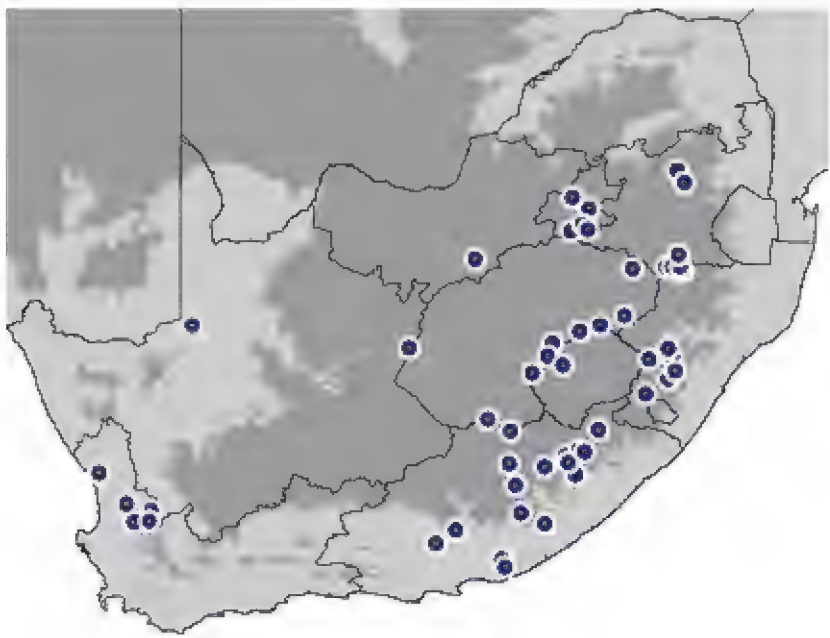
- A. No postocular spots on blackish head
- B. Bright reddish brown pterostigmas
- C. No light tail tip
- D. Whitish underneath
- E. Yellow face
- F. Greenish-yellow lower half of eyes

Yellow-faced Sprite

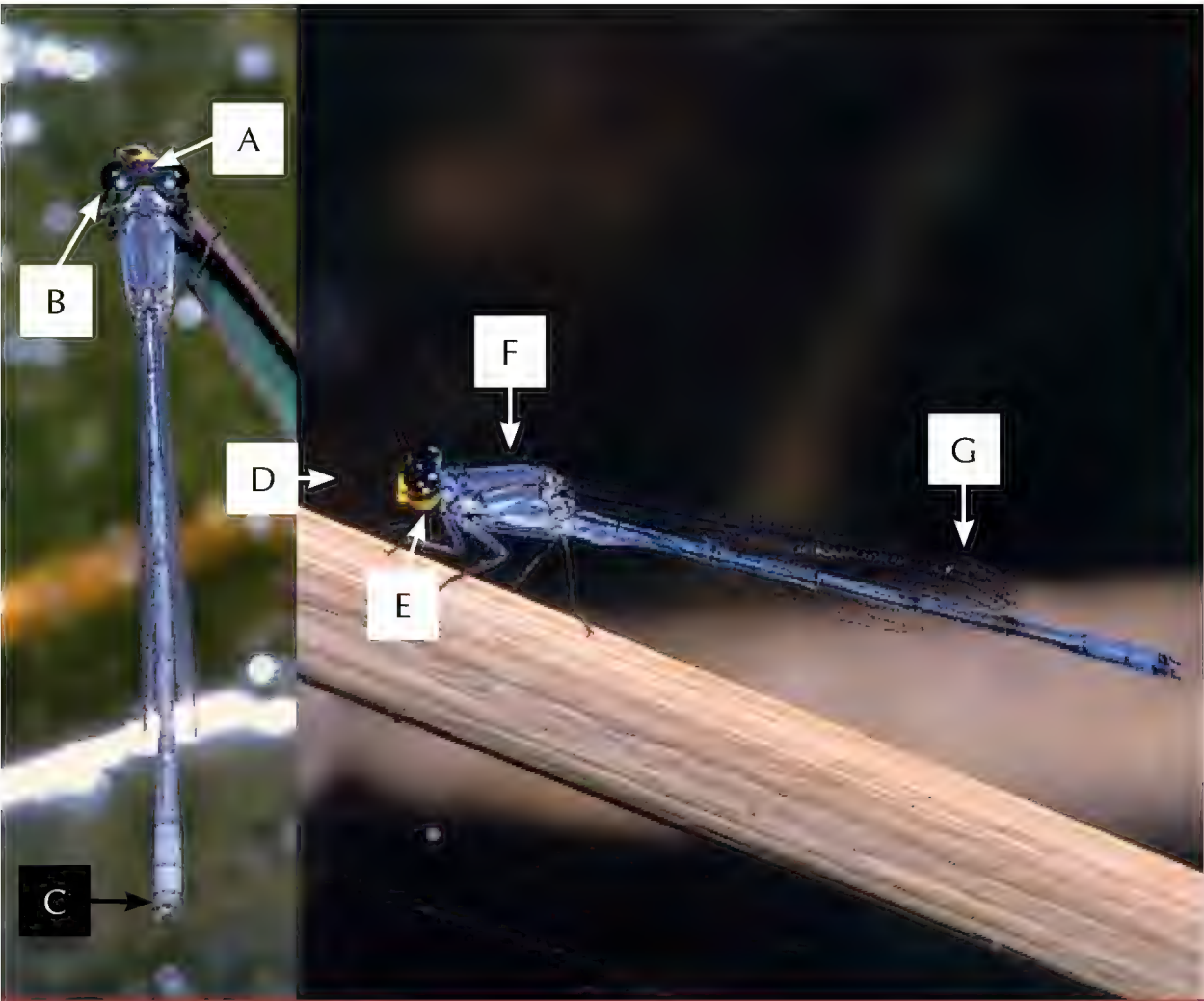
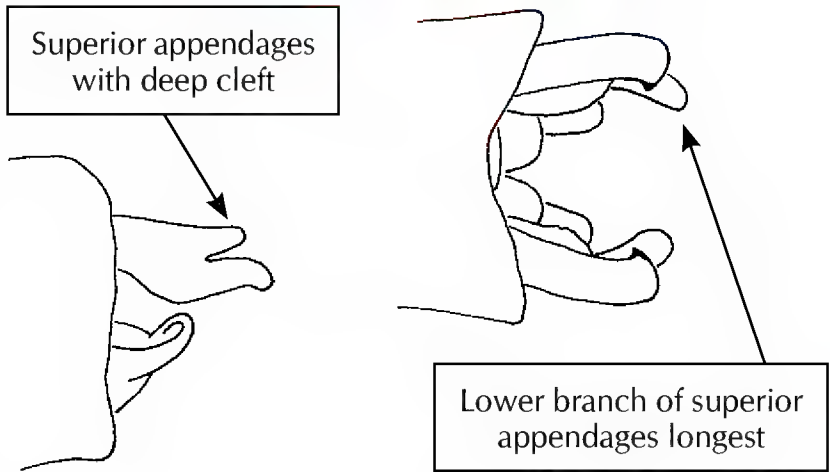
Pseudagrion citricola Barnard, 1937

Appearance: The Yellow-faced Sprite is small, dark blue with bright blue postocular spots, a bright yellow face and mauvish blue abdomen tip. Face bright yellow with an irregular black band at base of postclypeus. Head black with small bright blue postocular spots from above. Eyes black above, dull yellow to light green below. Neck pruinescent dark blue and black, buff below. Thorax slightly shiny, dark blue with a dusting of pruinescence, greenish blue below. Wings clear. Pterostigmas dull light brown becoming dark brown with age. Abdomen dull dark blue, pruinescent. Segments 8 and 9 bright mauvish blue above, segment 10 black. Female striped straw to reddish brown and black, abdomen shiny blackish and buff below.

Field notes: The Yellow-faced Sprite is endemic to South Africa and widespread. It is common across the Highveld and parts of the Cederberg, usually found between 1 200 and 1 500 m elevation, but occasionally at lower elevations in the Eastern and Western Cape. It occurs along sluggish streams and rivers and is sometimes seen at dams and pools with banks of tall grasses, rushes and herbs. It rests, often conspicuously, on the stems of grasses or rushes, where its yellow face can easily be seen when viewed from the front. It flits fast across the water when disturbed. On the wing from October to April.



Threat	DBI
LC	3



- Small in size
 - Thorax and abdomen single, solid blue colour when viewed from above with mauvish blue tail tip
 - Yellow face
 - Bright blue postocular spots
- A. Head blue on top
B. Bright blue postocular spots
C. Mauvish blue tail tip
D. Yellow face
E. Eyes yellow to yellowish green
F. Pale marks on thorax
G. Pterostigmas dull light brown, darkening with age

Body length: 32–33 mm

Hindwing length: 18.5–19.5 mm

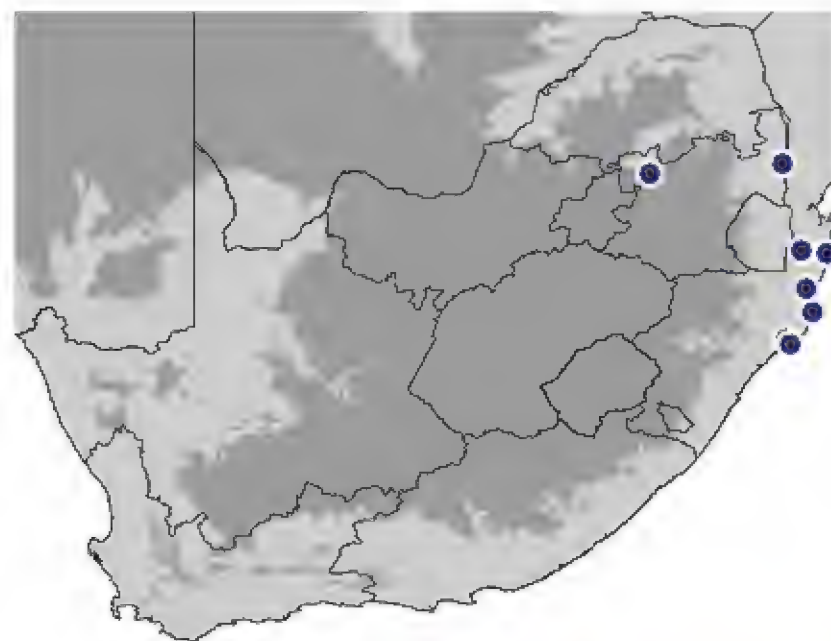


Catshead Sprite

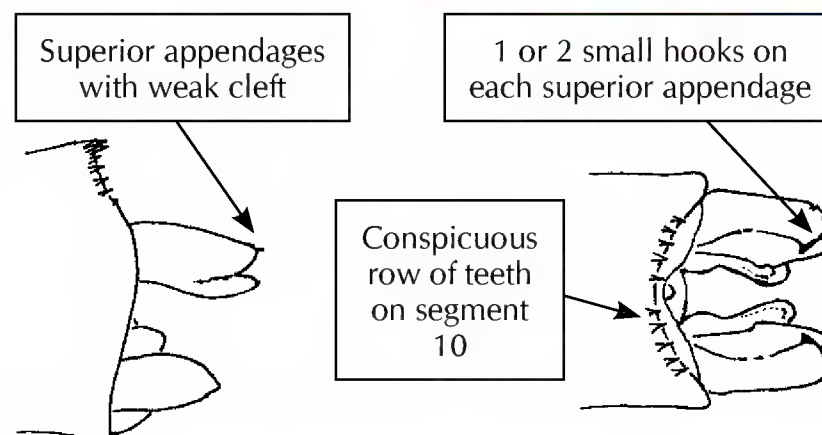
Pseudagrion coeleste Longfield, 1947

Appearance: The Catshead Sprite is small to medium sized, pale blue to greenish blue and black. Face pale green or bluish green with black band along base of postclypeus. Frons greenish blue with black, central crescent moon-shaped marking. Head black with large bluish green postocular spots from above, postocular spots sometimes linked through a fine bluish green line. Eyes black above, greenish blue below. Neck bluish green with black markings. Thorax greenish blue above, blue at sides, strong black stripe present midway along thorax and another slightly wavy one on the shoulder. Wings clear. Pterostigmas brown with mauvish tinge. Abdomen pale blue with black markings. Segment 1 with black spot at its base. Segment 2 with black marking shaped like a cat's head which varies in distinctiveness between individuals. Segments 3 to 7 blackish, shiny above, with rings of shiny black at end of each segment. Segments 8 to 10 pale blue. Segment 10 with dorsal black band. Female brownish, reddish brown above and straw below, large green postocular spots present. There are two forms which vary slightly in their appendages: *P. c. coeleste* (northern form) and *P. c. umsingaziense* (southern form).

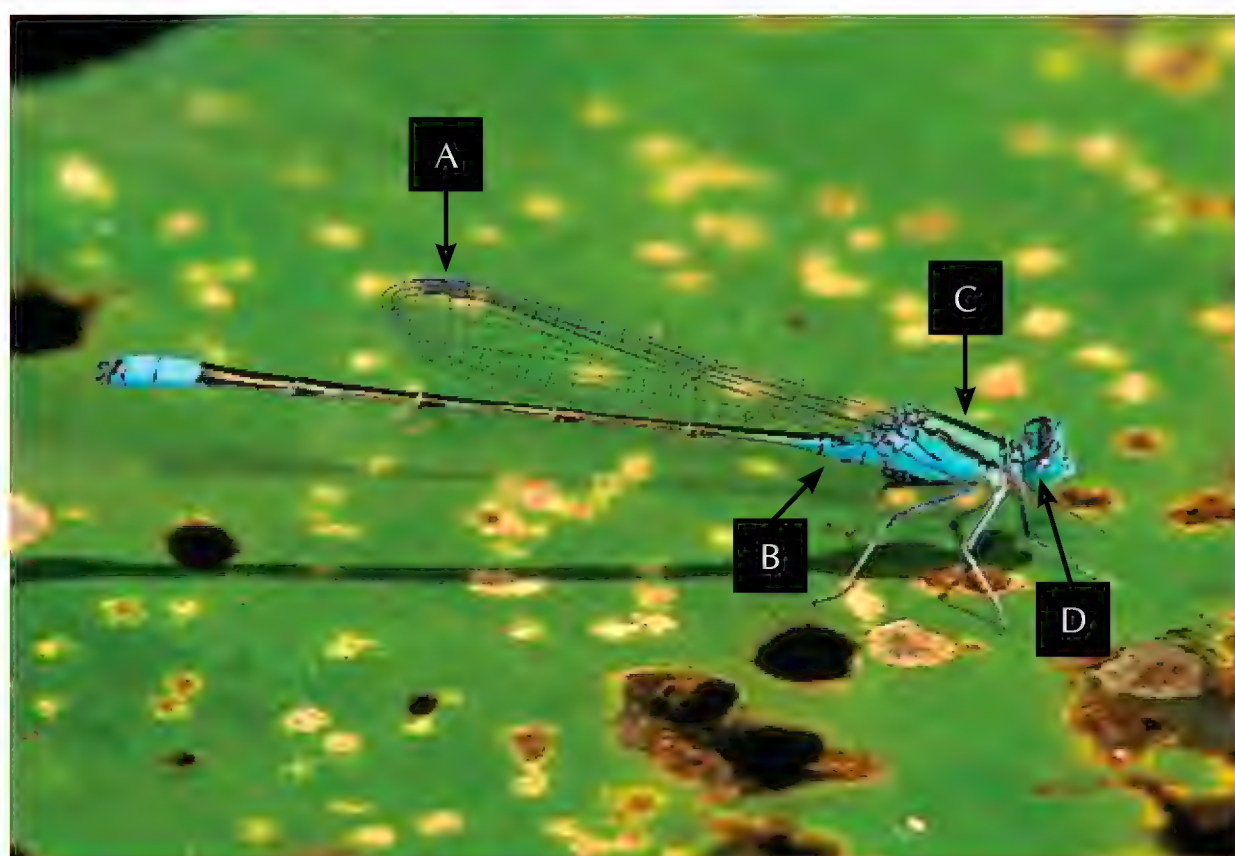
Field notes: The Catshead Sprite occurs north to Angola and Zambia. In South Africa the northern form (*P. c. coeleste*) occurs in the Limpopo Province and in the Kruger National Park. The southern form (*P. c. umsingaziense*), occurs in northern KwaZulu-Natal. It lives in a wide range of still water habitats where there is an abundance of tall grasses, reeds and sedges, from pools, swamps and marshes to dammed reaches



	Threat	DBI
Catshead Sprite (<i>P. c. coeleste</i> , northern form)	LC	4
Catshead Sprite (<i>P. c. umsingaziense</i> , southern form)	VU	7



of rivers. It is often seen resting on lily pads or on short emergent grass stems close to the water. It can also be seen resting or flitting about among the bank's marginal vegetation. On very hot days it may retreat to the shade of trees. On the wing from December to May.



Body length: 35–37 mm

Hindwing length: 20.5 mm

- Entirely light blue/greenish blue and black
- Top of thorax greenish blue
- Large bluish green postocular spots with a bar between

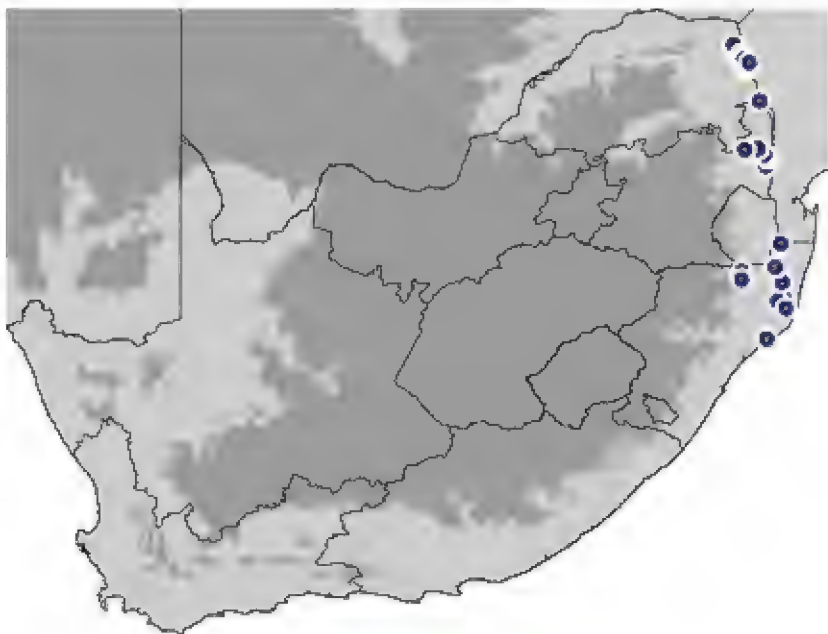
- A. Pterostigmas brown with mauve tinge
- B. Cat's head black mark on segment 2
- C. Top of thorax greenish blue
- D. Distinct postocular spots and bar between them

Black Sprite

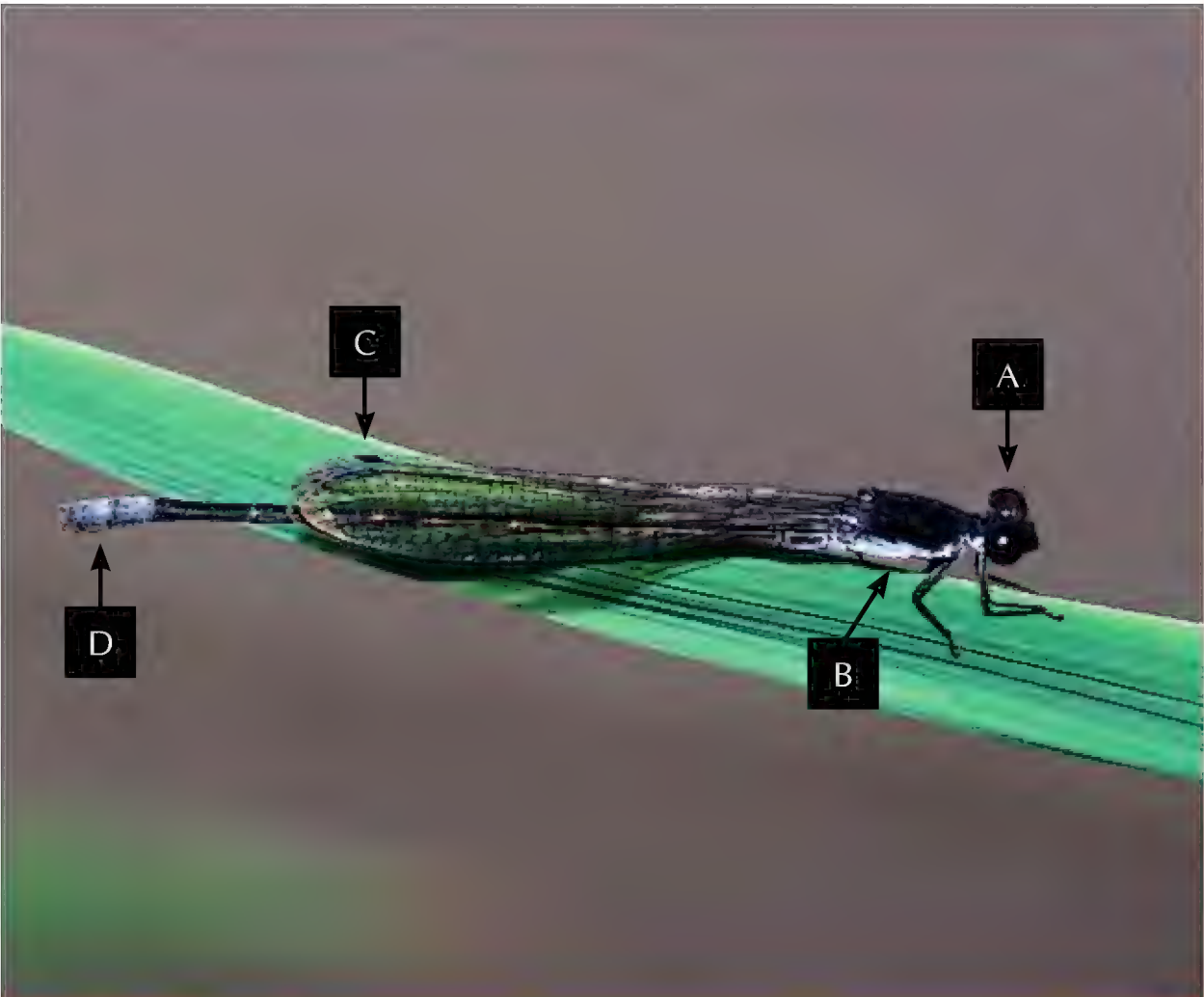
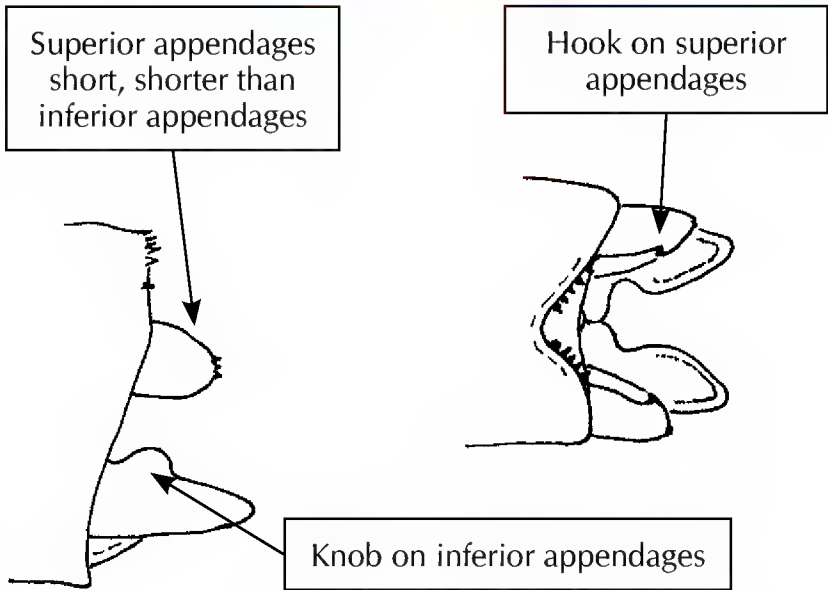
Pseudagrion commoniae (Förster, 1902)

Appearance: The Black Sprite is small to medium sized, mostly black above with no postocular spots, and a grey-tipped abdomen. Face and head above velvet black. Labrum shiny black. Postocular spots absent. Eyes above and in front black, lower back portion of eyes deep red and green; eyes all black in some individuals. Legs black. Neck and thorax black from above, strongly pruinulent light greyish blue below. Wings clear with black venation becoming slightly smoky with age. Pterostigmas blackish brown. Abdomen black above, dull green below, with brown rings at the end of each segment. Segments 8 and 9 bright pruinulent light grey to light blue. Segment 10 black with some pruinulence. Female light brown above, greenish below with weak and dark broken stripes.

Field notes: The Black Sprite extends north to Ethiopia. In South Africa, it occurs in northern KwaZulu-Natal and the lowveld of Mpumalanga and Limpopo Province. It frequents pools and waterholes, but its preferred habitat is the sluggish reaches of streams and rivers, sometimes where the water is very clouded. It rests and flies among rushes and sedges at the margin of the water and usually perches close to the water on emergent twigs, generally reluctant to fly. On the wing from December to May.



Threat	DBI
LC	2



- All black from above, except for pruinulent blue tail tip
- A. Eyes mostly black
- B. Thorax black above and pruinulent light greyish blue below
- C. Pterostigmas blackish brown
- D. Pruinent blue abdomen tip

Body length: 33–38 mm

Hindwing length: 18.5–23.0 mm

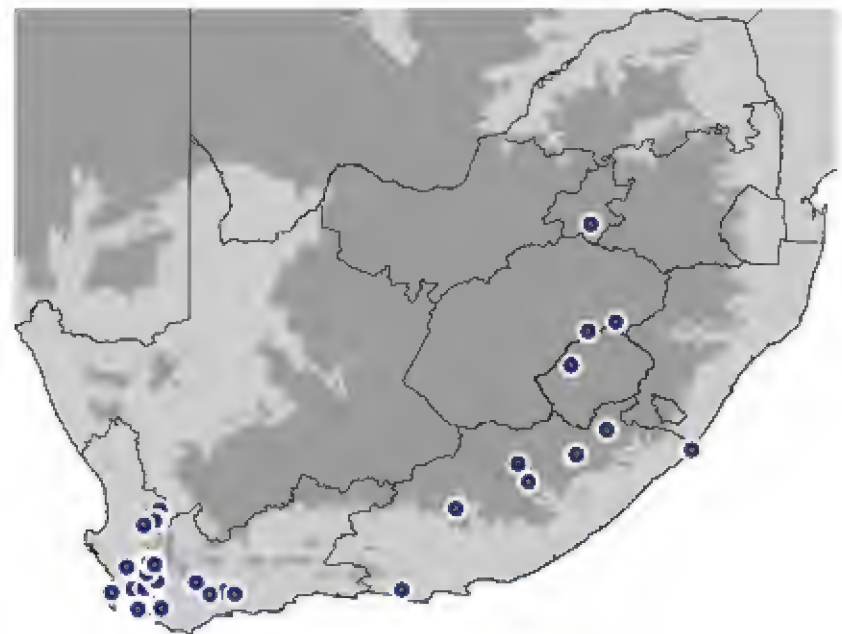


Mountain Sprite

Pseudagrion draconis Barnard, 1937

Appearance: The Mountain Sprite is small and overall deep slate blue above, with a mauvish abdomen tip. Face dull black with light green cheeks. Anteclypeus bluish green with black base. Frons black with heavy white pruinescence. Labrum dark brown. Postocular spots small or absent in Western Cape individuals, but large, almost circular and bright blue in Drakensberg individuals. Neck black and pruinescent light grey. Thorax dark slate blue with a bronze sheen becoming dull black with some pruinescence with age above, greyish brown to light green below. Wings are clear. Pterostigmas dark reddish brown. Abdomen slate blue with bronze sheen becoming dull blackish with age. Segments 8 and 9 mauvish blue becoming pruinescent grey with age. Female light brownish grey to reddish brown, with fine dark brown stripes on thorax, abdomen dark greenish above and buff below.

Field notes: The Mountain Sprite is endemic to South Africa, from the Western Cape mountains through to the mountains of the Eastern Cape and KwaZulu-Natal. In the Drakensberg, it may reach 2 100 m elevation, occasionally occurring on the Highveld, and it has also been recorded in the Mountain Zebra National Park. It lives among tall grasses and reeds along quiet reaches of lower elevation montane streams in the Western Cape, through to high elevation montane streams in the Drakensberg. Sometimes occurs along the grassy margins of rivers. It rests and hovers below and close to the water

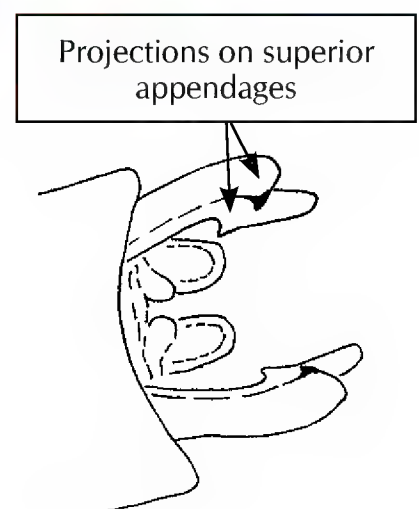
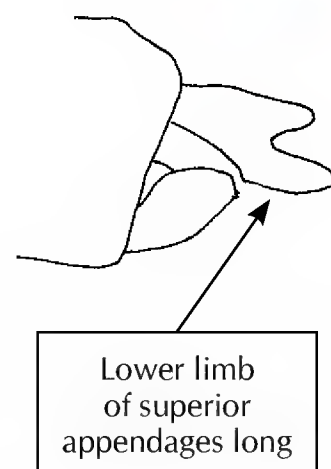


Threat

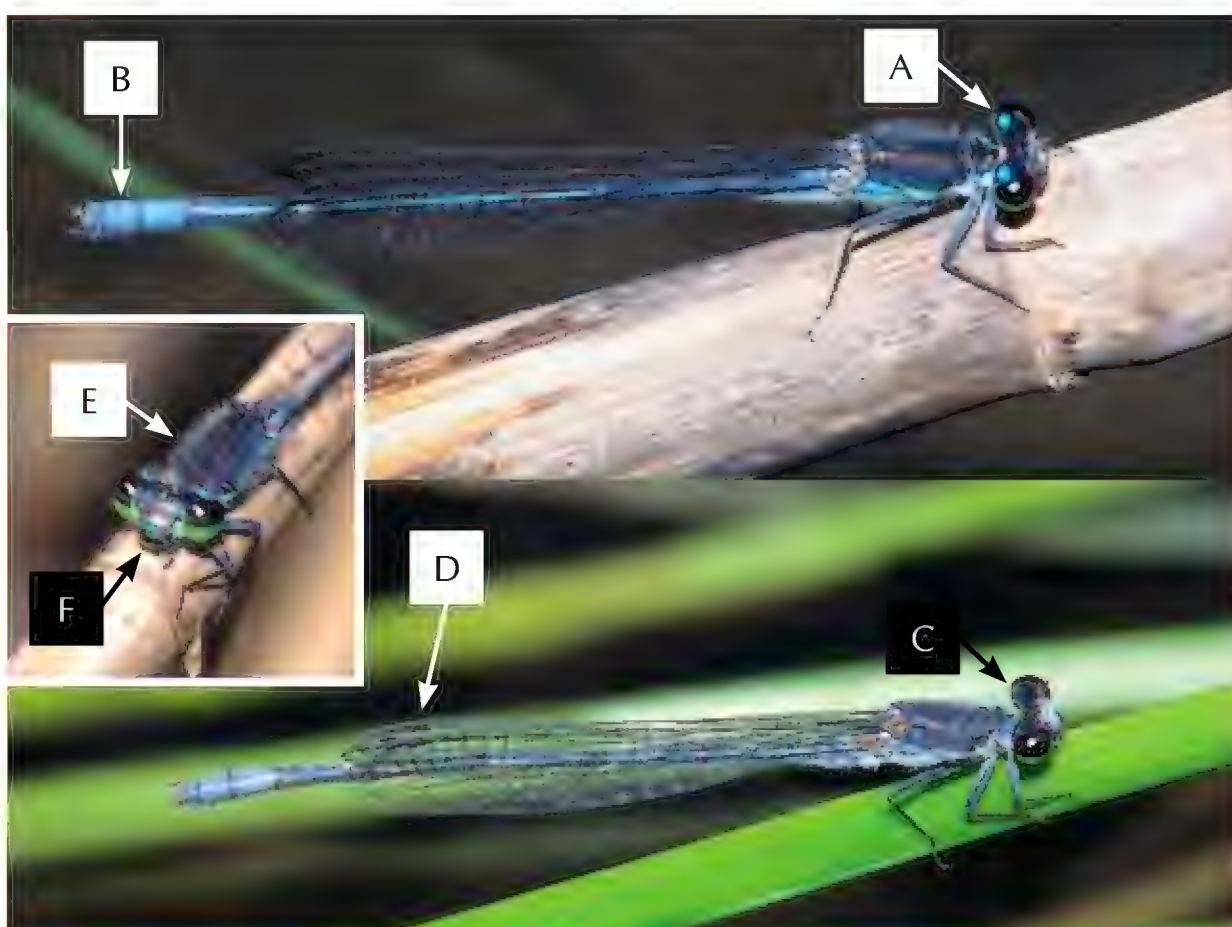
LC

DBI

4



among grasses and reeds around sunlit pools of the stream or river, often seen perching on small boulders within the stream. On the wing from October to May, but occasional overwintering adults may be seen.



- All dark blue when viewed from above
- Shiny black labrum

- A. Large postocular spots (Drakensberg)
- B. Last three segments only slightly lighter blue than rest
- C. Small or no postocular spots (Western Cape)
- D. Pterostigmas dark reddish brown
- E. Hairy thorax
- F. Labrum shiny black

Body length: 31.5–36.0 mm

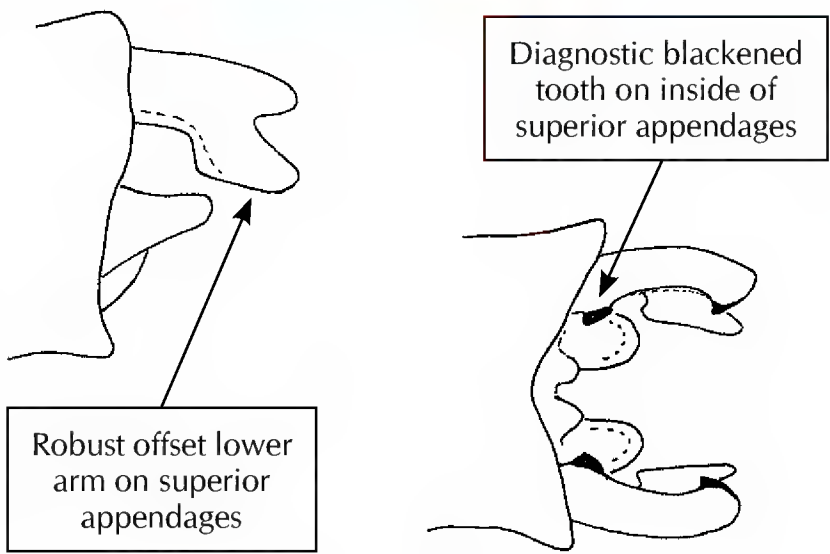
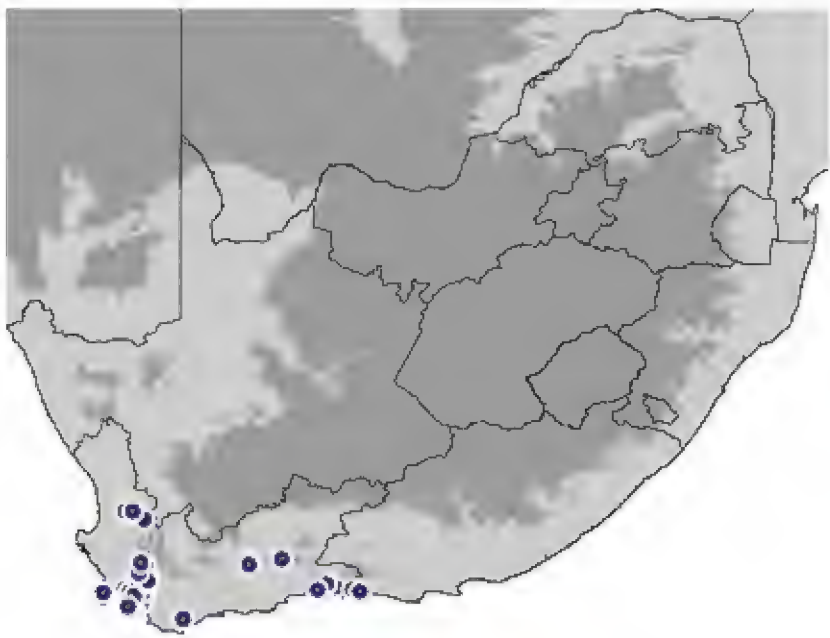
Hindwing length: 17.5–19.5 mm

Palmiet Sprite

Pseudagrion furcigerum (Rambur, 1842)

Appearance: The Palmiet Sprite is small, slate blue, with a pruinescent whitish striped thorax. Face dark blue and pruinescent white. Labrum, anteclypeus and cheeks lime green. Head blackish with dumbbell-shaped pruinescent postocular patterning from above, true pigmented postocular spots absent. Eyes blackish grey above, lime green below. Neck black and pruinescent light grey. Thorax blackish blue with slight bronze sheen and strongly marked pale blue pruinescent stripes, side stripes blackish, slightly pruinescent in the lower half and leads into whitish pruinescent area of lower thorax. Wings clear. Pterostigmas dark brown. Abdomen mostly dark blackish blue. Segments 1 to 3 with a dusting of white pruinescence over the dark blue. Segments 8 to 10 pruinescent whitish blue. Female bright reddish brown and black when young, becoming bright bluish green and black with a blue abdomen tip with age.

Field notes: The Palmiet Sprite is endemic to the Cape. It occurs along clear, fast montane streams with a stony bed and clumps of *palmiet* reed. It is rather inactive, usually perching along a reed blade over the water, or on boulders in the stream flow. The female is conspicuous with her bright colours, sitting on stones in the stream. On the wing from October to May.



- Striped blue and black
- No true postocular spots, pruinescent marking present
- Labrum green
- A. Pterostigmas dark brown
- B. Wide black side stripe
- C. Dumbbell-shaped pruinescent bar
- D. Labrum green
- E. Segments 8 and 9 slightly pruinescent
- F. Segment 1 pale pruinescent grey

Body length: 35–36 mm

Hindwing length: 20.5–21.0 mm

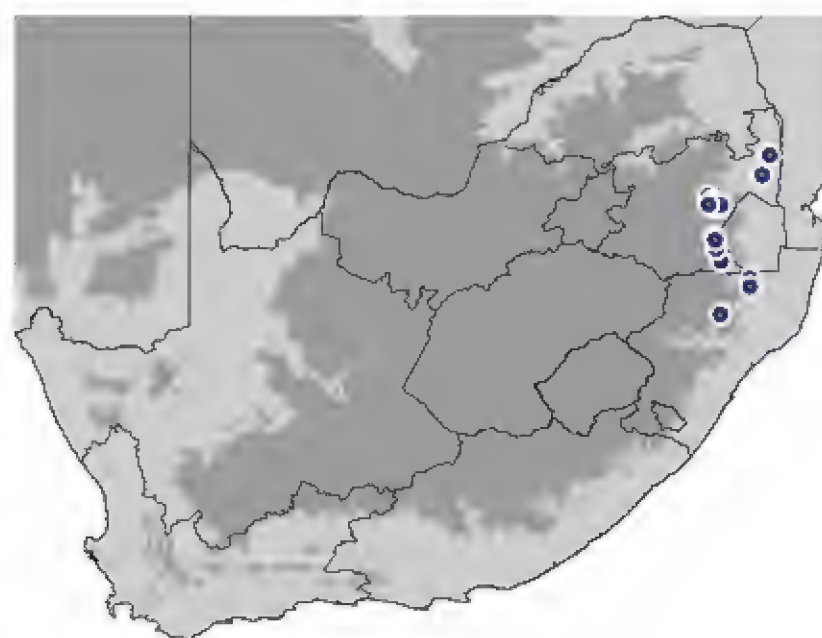


Great Sprite

Pseudagrion gamblesi Pinhey, 1978

Appearance: The Great Sprite is fairly large, striped greenish blue and black with a yellowish orange face. Face and labrum bright yellowish orange. Postclypeus with black basal band. Head black with large round light blue postocular spots from above. Eyes black above, yellowish orange below. Neck light greenish brown and black. Thorax distinctly striped from above, light greenish brown and greyish black, sides light greenish blue. Wings clear. Pterostigmas dark brown with fine light brown margins, angular. Abdomen black with bronze sheen from above, light greenish blue to light brown below, curves slightly upwards – easily seen in the field. Segments 8 and 9 bright blue becoming very pruinose and whitish with age. Segment 10 blackish. Appendages very long. Female reddish brown and black with large round brown postocular spots, pterostigmas light brown.

Field notes: The Great Sprite is a localised species at elevations between 700 and 1 400 m in northern KwaZulu-Natal and southern Mpumalanga. Its range extends to Angola and the Democratic Republic of the Congo and it occurs along fast, rocky bottomed rivers with side pools fringed with tall grasses, reeds and herbs in upland grassy savanna. It is an inactive species, mostly seen resting on reed stems overhanging water. On the wing from October to April.

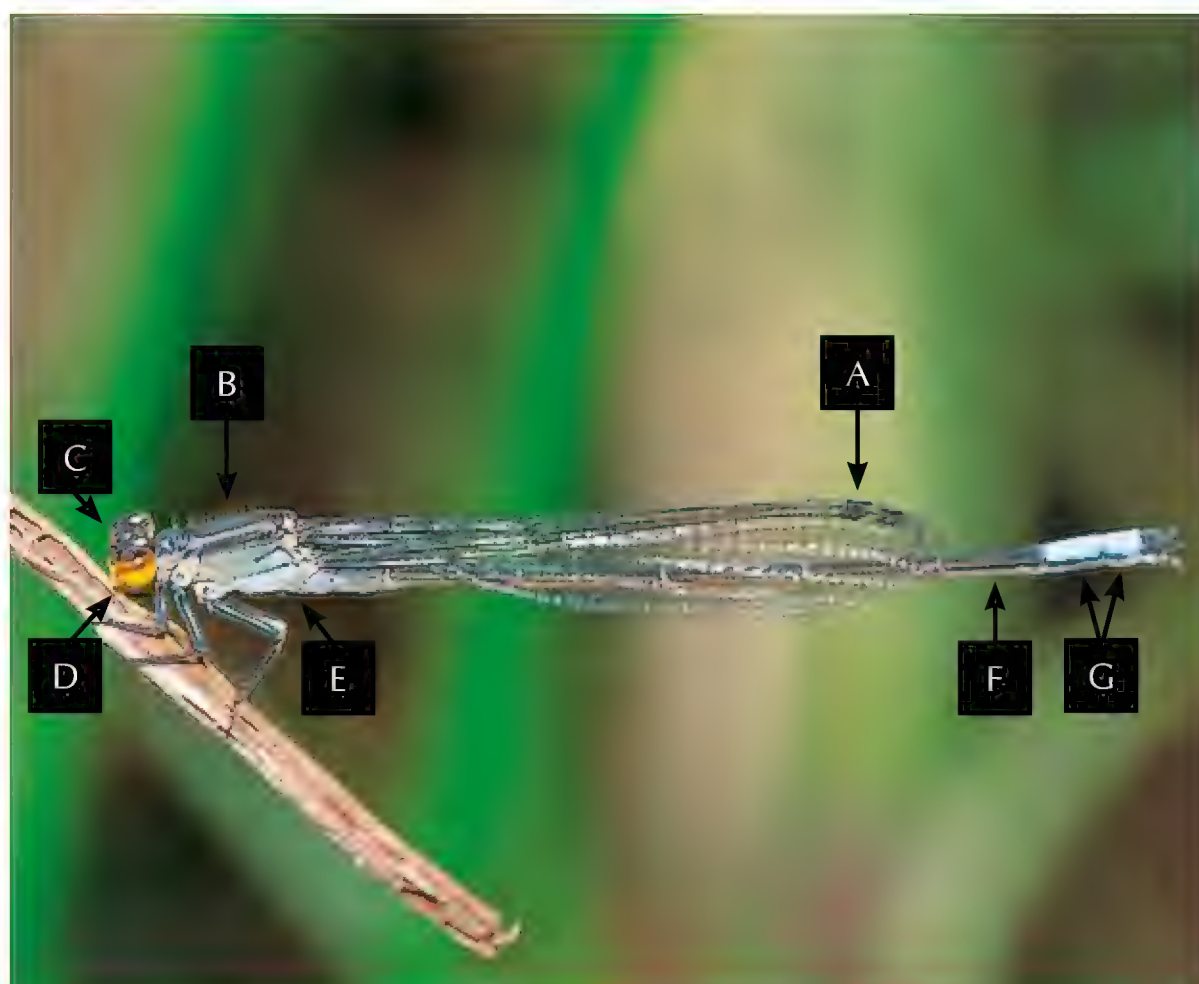
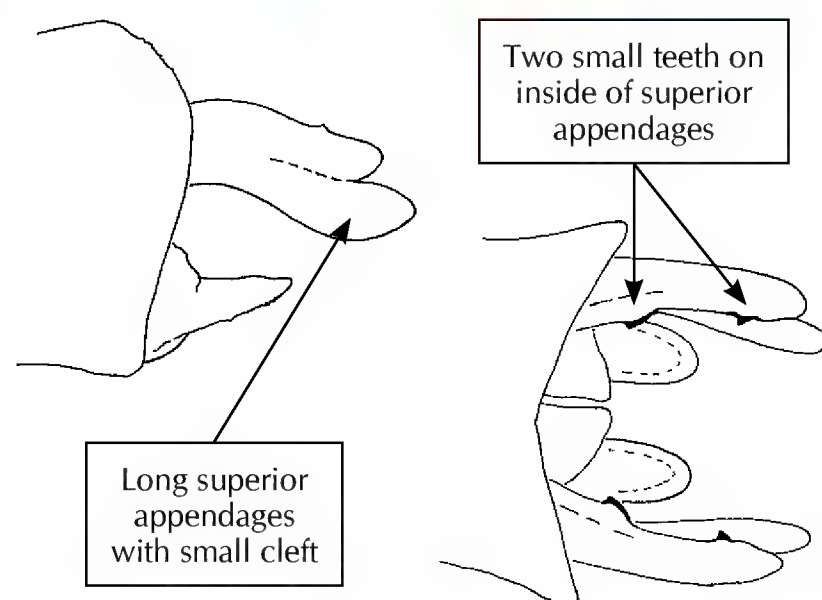


Threat

LC

DBI

4



- A very large Sprite
- Yellow face
- Blue abdomen tip
- Abdomen slightly upturned at end, easily seen in the field

- A. Pterostigmas dark brown with light margins
- B. Light greenish brown stripe
- C. Bright yellowish orange face
- D. Eyes yellowish orange below
- E. Greenish blue side
- F. End of abdomen turned upwards slightly
- G. Segments 8 and 9 blue

Body length: 45–46 mm

Hindwing length: 27.5–28.0 mm

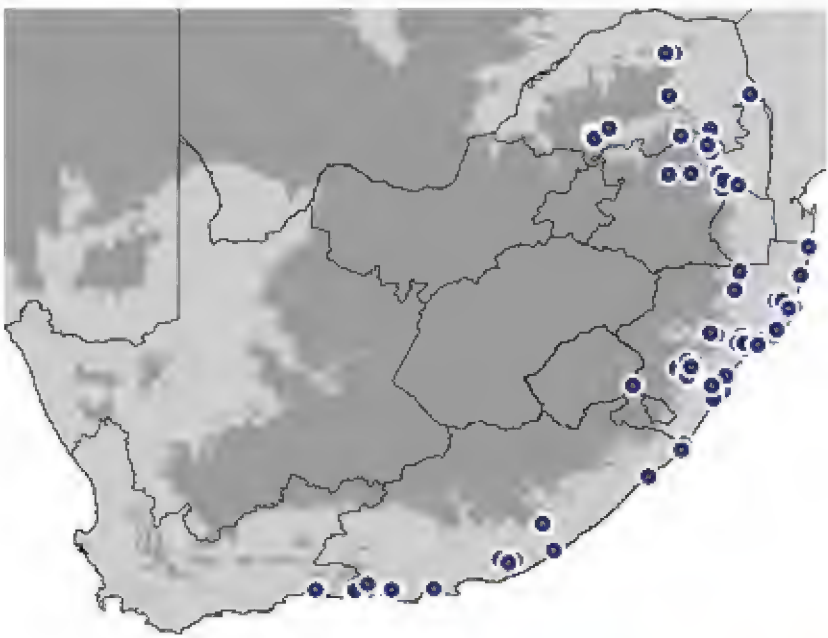


Painted Sprite

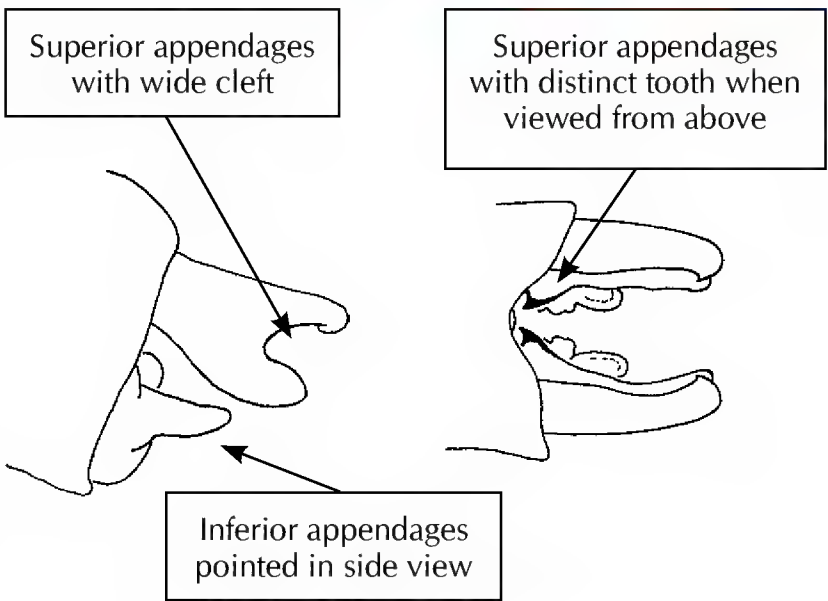
Pseudagrion hageni Karsch, 1893

Appearance: The Painted Sprite is a slender, small to medium-sized damselfly with an orange-red face. There is a northern form with a light green and black striped thorax and a southern form with a red striped thorax. Face bright orangey red with light orange labrum and black postclypeus. Head dull black from above with bright orange postocular spots linked by an orange bar. Eyes deep red above, orange below. Neck black with orange and light green spots. Northern form (*P. h. tropicanum*): thorax with light green and black stripes, green stripes continuing under first part of abdomen. Southern form (*P. h. hageni*): thorax orangey red and black striped. Wings clear. Pterostigmas light to deep reddish brown. Abdomen slender, black with bronze sheen. Segments 8 and 9 bright violet above. Segment 10 black. Overall size variable. Female pale brown and black, brown becoming light blue with age, postocular spots light brownish blue joined by a bar, end of segment 8 and segments 9 and 10 light brownish blue.

Field notes: The Painted Sprite is locally common from the southern coast northwards into the northern provinces. The southern form (*P. h. hageni*) occurs from the Western Cape along the coast to the Eastern Cape. The northern form (*P. h. tropicanum*) occurs from Port St Johns northwards. Its range extends to East and West Africa. It is a distinctly shade-loving species occurring under trees, even in the dark recesses of *Barringtonia* and *Raffia* forest. It occurs along sluggish parts of streams, rivers, seeps, bogs and lakes with clear water and marginal tall grasses, and a tangle of undergrowth. It is often seen as



	Threat	DBI
Painted Sprite (<i>P. h. tropicanum</i> , northern form)	LC	2
Painted Sprite (<i>P. h. hageni</i> , southern form)	LC	5



its colours are bright compared to its dark surroundings, especially when it flits and hovers in sunflecks over the dark water. On the wing from November to May.

Painted Sprite (*P. h. hageni*, southern form)

Painted Sprite (*P. h. tropicanum*, northern form)

- Slender
- Red face
- Red thorax (southern form)
- Green thorax (northern form)
- Violet tail tip when mature

A. Red stripes on thorax
B. Red face and eyes
C. Violet tail
D. Green stripes on thorax
E. Blue tail tip when young, becoming violet with age

Body length: 36–43 mm

Hindwing length: 21.5–23.5 mm



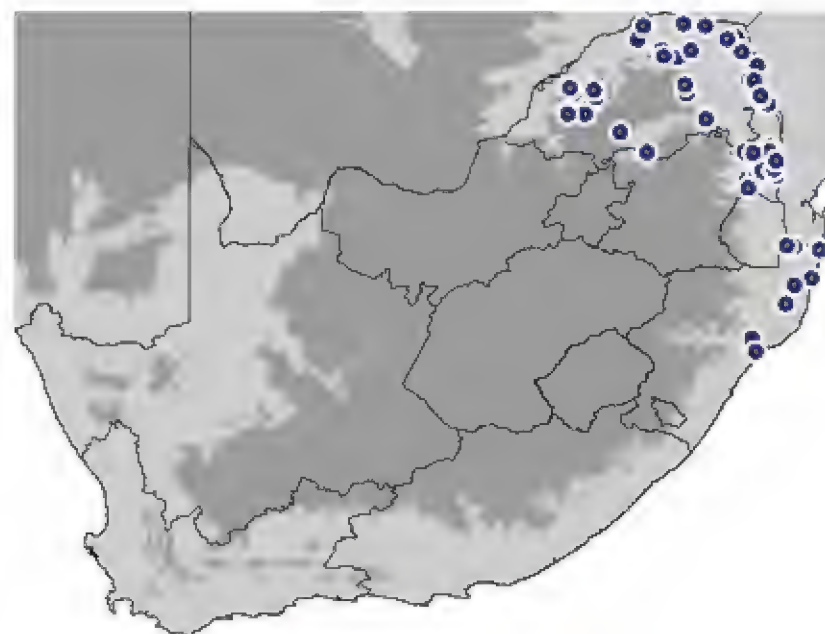
Swarthy Sprite

(Drab Sprite)

Pseudagrion hamoni Fraser, 1955

Appearance: The Swarthy Sprite is small to medium sized, mostly dull maroon and blackish. Face dull deep red or brackish red and black. Labrum and cheeks maroon. Head dull black with green or greenish blue from above with angular post-ocular spots that are linked by a bar of the same colour. Postocular spots sometimes become brown with age. Eyes dark red in front, maroon behind with blue patch just below maroon area, hind area can turn from maroon to black with age. Some individuals have dull red eyes with a blackish ring around the middle, brownish behind. Neck black and pruinose grey on sides. Thorax black with bronze sheen from above with maroon to dark brown stripes, lower part of sides greenish blue with light pruinescence often becoming heavy with age. Blue spots present between wing bases, become pruinose with age. Wings clear. Pterostigmas reddish brown. Abdomen black with bronze sheen above, yellowish green with a black spot at the end of each segment from side. Segments 1 and 2 with heavy pruinescence above. Segment 7 all black, segments 8 and 9 bright light blue with fine black scalloped ring between 8 and 9. Segment 9 with black saddle at the end. Segments 8 and 9 become light grey with heavy pruinescence with age. Female orangey brown with black head, pale brown and black body with a greenish tinge.

Field notes: The Swarthy Sprite occurs from northern KwaZulu-Natal through the lowveld of Swaziland and Mpumalanga to the Limpopo Province. Some individuals have been found up

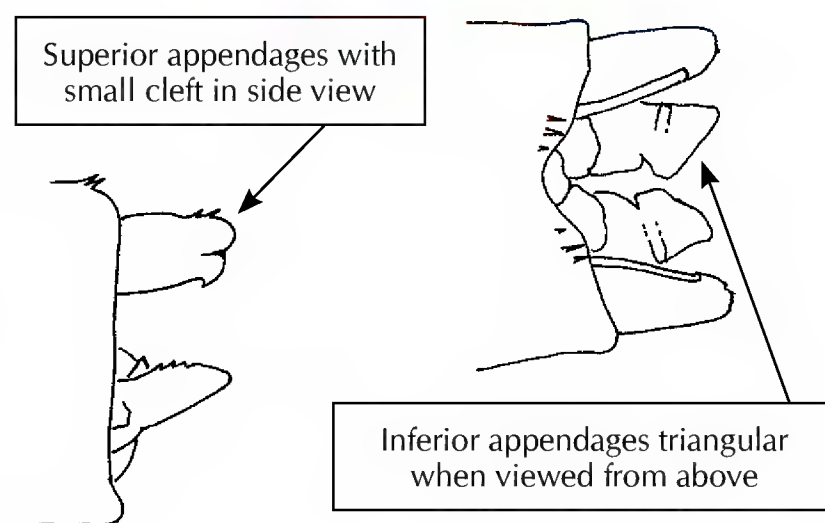


Threat

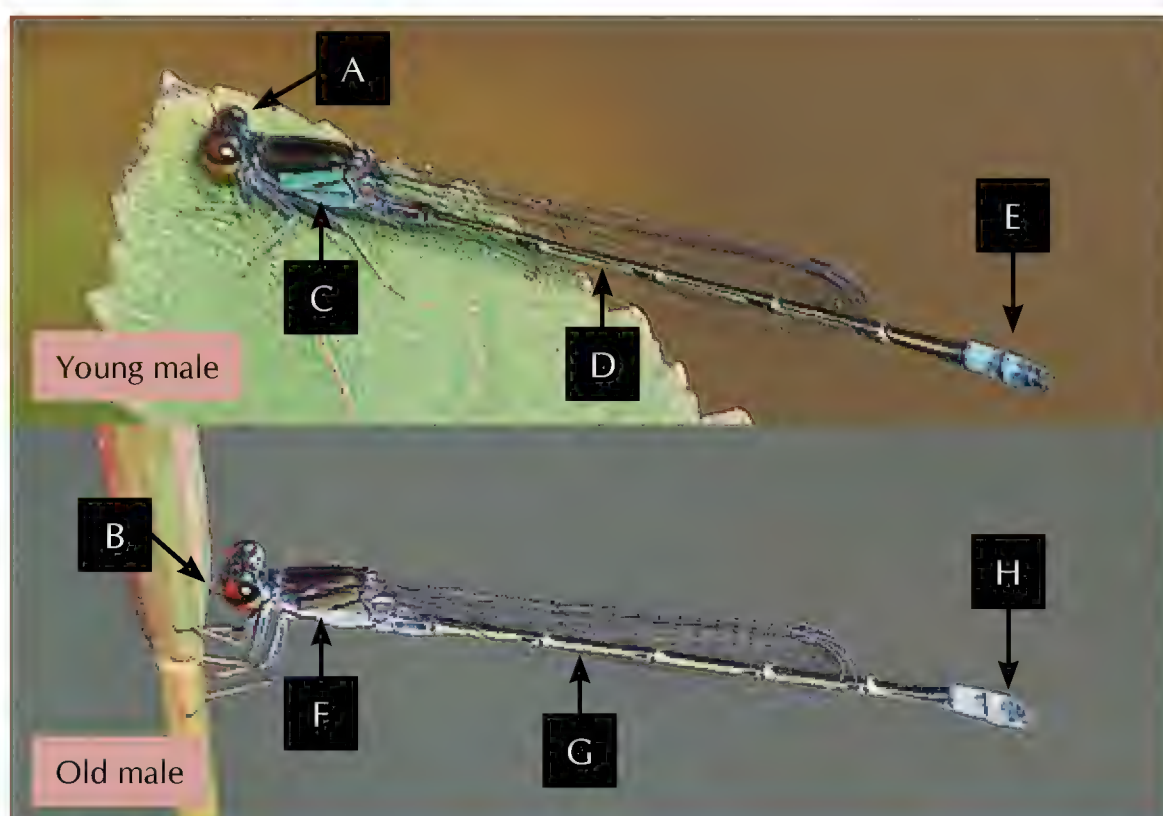
LC

DBI

2



to 1 600 m elevation. Its range extends to East and West Africa. It usually occurs in sluggish reaches of hot savanna streams and rivers even with cloudy water, and occasionally in pools and dams. It perches on tall grasses over the water or on emerging stems and lilies. On the wing from November to May.



- Dark brown top of thorax
- Large greenish to blue postocular spots
- Eyes reddish
- A. Large green or greenish blue postocular spots
- B. Eyes reddish with dark ring, becoming eventually all dark above
- C. Bluish green sides
- D. Green side
- E. Blue tail tip
- F. Sage to dark green sides
- G. Straw-coloured sides
- H. Pruinescent tail tip

Body length: 36–38 mm

Hindwing length: 19.5–20.0 mm

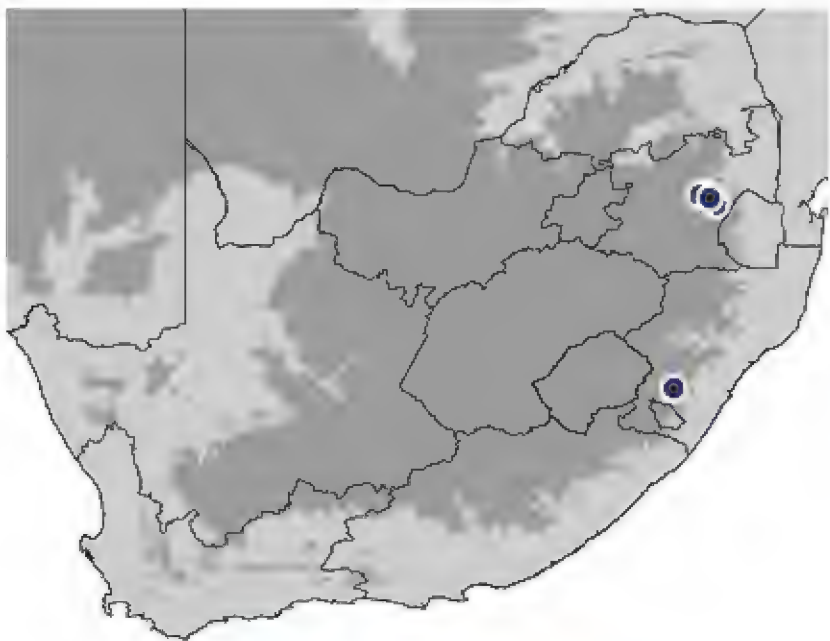


Balinsky's Sprite (Badplaas Sprite)

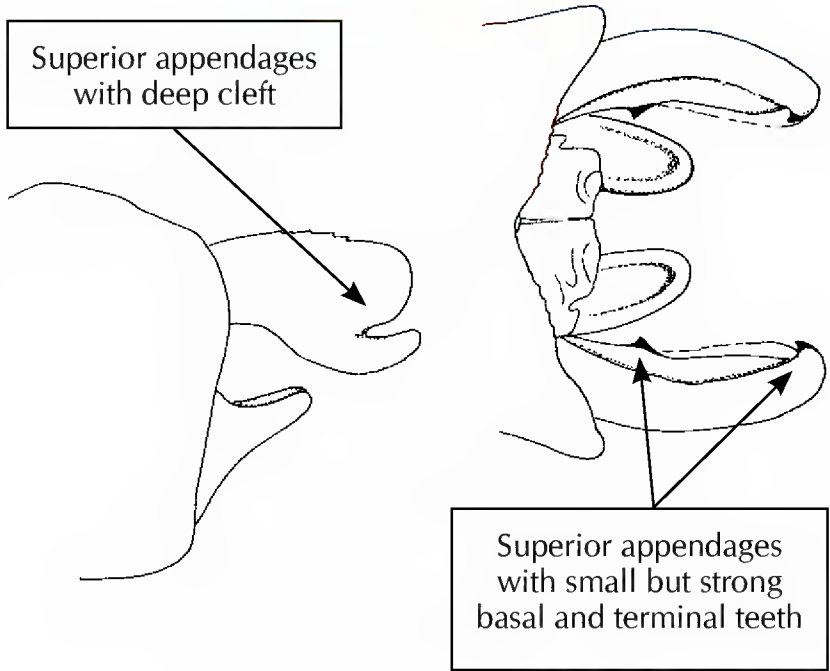
Pseudagrion inopinatum Balinsky, 1971

Appearance: Balinsky's Sprite is small and all dark blue. Face and head above mostly black with pruinulent blue dusting. Labrum greenish blue. Postocular spots large, triangular to oval, bright blue. Eyes black above, bluish green below. Neck and thorax dark blue with greyish pruinulence, dull greenish brown below. Wings clear. Pterostigmas rusty brown with pale hind margin. Abdomen pruinulent dark blue, with characteristic purplish tip from the last two-thirds of segments 7 to 10. Female striped greenish and black, face green and blue, head dark brown with large bright blue postocular spots, abdomen blackish with a distinct metallic sheen and some bluish grey on the tip.

Field notes: Balinsky's Sprite is a highly localised endemic having only been recorded from the Badplaas–Machadodorp area, Mpumalanga and the KwaZulu-Natal Midlands. Its habitat is small, fast flowing, rocky bottomed rivers at about 1 000 m elevation, with a profusion of rocky islands and marginal grasses and reeds. It rests on reed stems or grasses over running water. On the wing from November to May.



Threat	DBI
NT	7



- Extremely rare
- All slate blue
- Large, triangular and blue postocular spots
- A. Postocular spots large, triangular and blue
- B. Body all pruinulent dark blue

Body length: 38 mm

Hindwing length: 21.5–22.5 mm





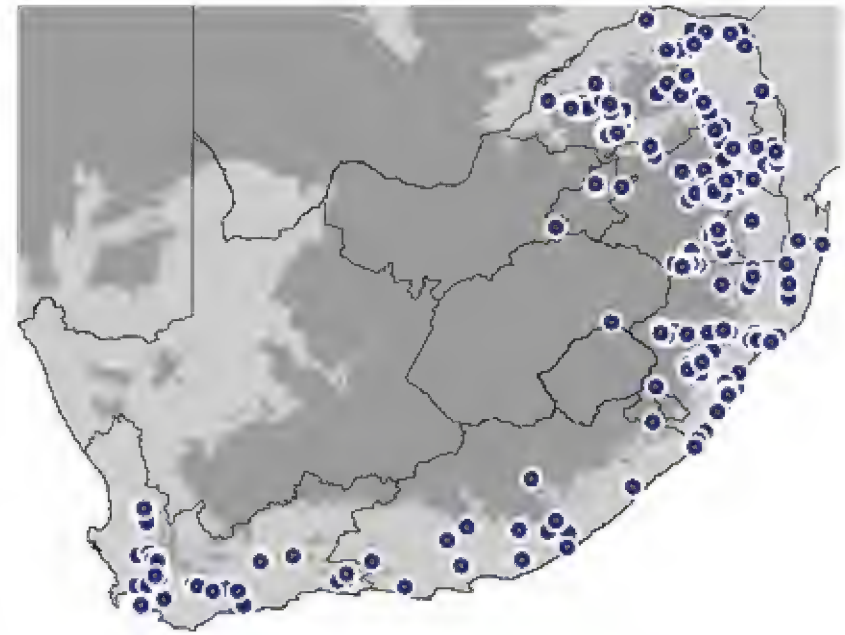
Powder-faced Sprite

(Kersten's Sprite)

Pseudagrion kersteni (Gerstäcker, 1869)

Appearance: The Powder-faced Sprite is medium sized, pruinescent powdery blue and black striped. Face black with whitish pruinescent splash across nose. Labrum black. Head black with large round to oval bright blue postocular spots from above. Eyes black and light green above, yellow green below. Neck black, heavily pruinescent white. Thorax distinctly striped, with heavily pruinescent whitish blue stripes alternating with black stripes with slight shiny bronze. Wings clear. Pterostigmas brown, blacken with age. Abdomen bronze black becoming heavily pruinescent whitish blue with age, tip of abdomen light blue turning heavily whitish pruinescent with maturity. Segment 1 and sometimes segment 2 with greenish side patch which becomes obscured with pruinescent whitish blue with age. Female pale brown with greenish tinge and black, becoming darker brown and eventually bluish brown and black with age.

Field notes: The Powder-faced Sprite is very common throughout much of eastern and southern South Africa between 50 and 1 600 m elevation, rarely seen close to the coast or in the Karoo. Its range extends throughout much of tropical Africa. It can be found among tall grasses, herbs and reeds fringing shallow, fairly fast streams and small rivers. It is easily seen sitting on a reed or grass stem beside the running water, usually



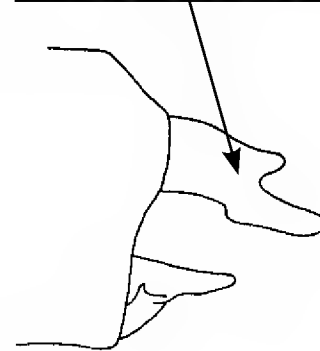
Threat

LC

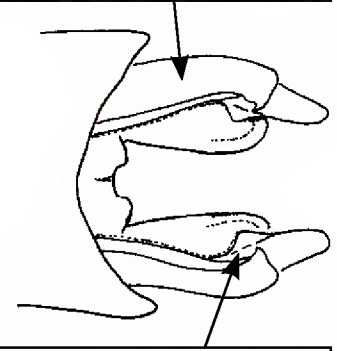
DBI

1

Superior appendages
Z-shaped in side view

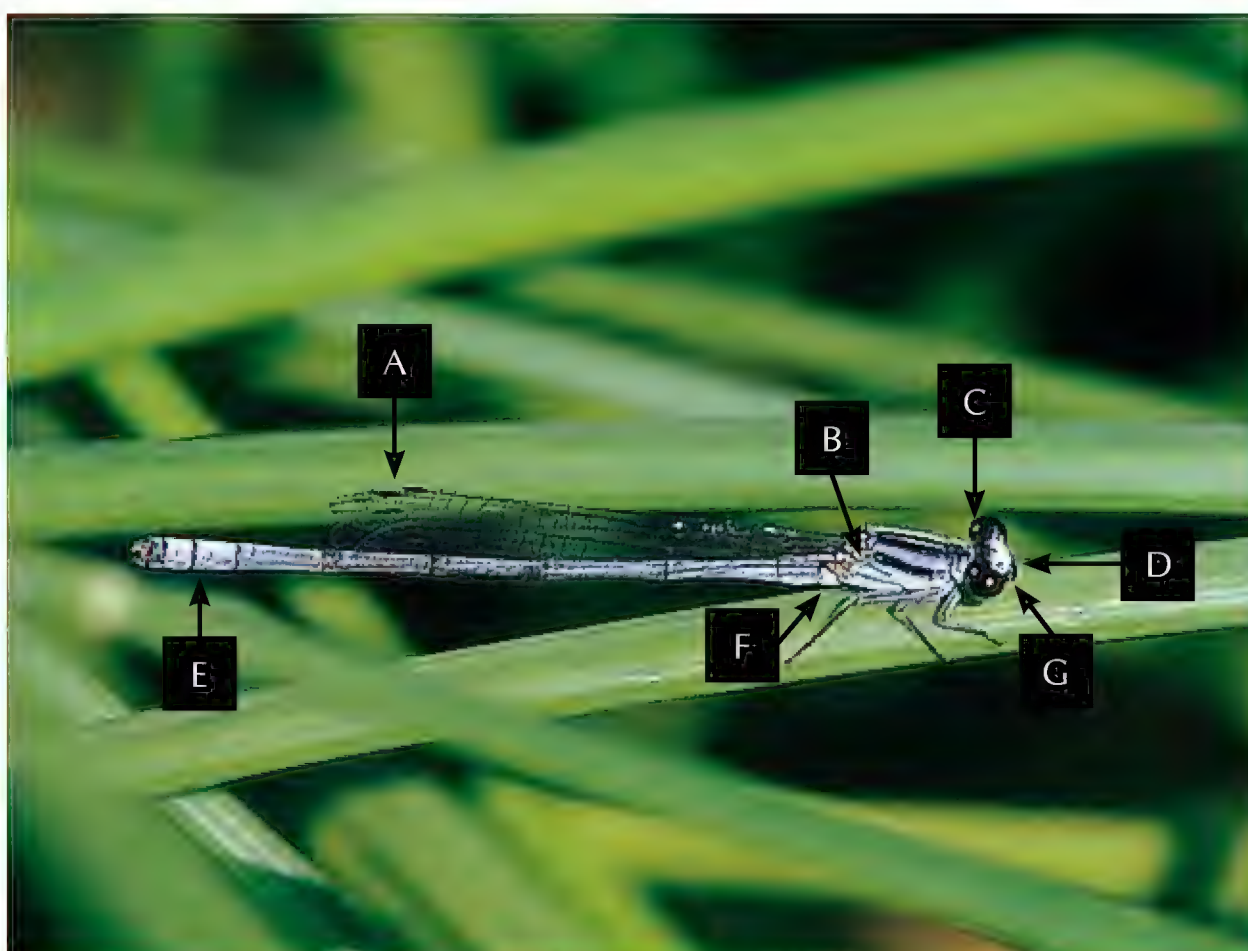


Superior appendages
with no basal tooth



Superior appendages with
blunt spine on inside

fairly close to the surface. The female is usually found away from the water among tall grasses. On the wing all year, although scarce in winter.



- Blue and black stripes
- Distinct bright blue postocular spots
- Labrum blackish

- A. Pterostigmas blackish brown
- B. Narrow black side stripe
- C. Bright blue postocular spots
- D. Highly pruinescent face
- E. Last segments whitish pruinescent
- F. Segment 1 slightly greenish
- G. Blackish labrum

Body length: 38–41 mm

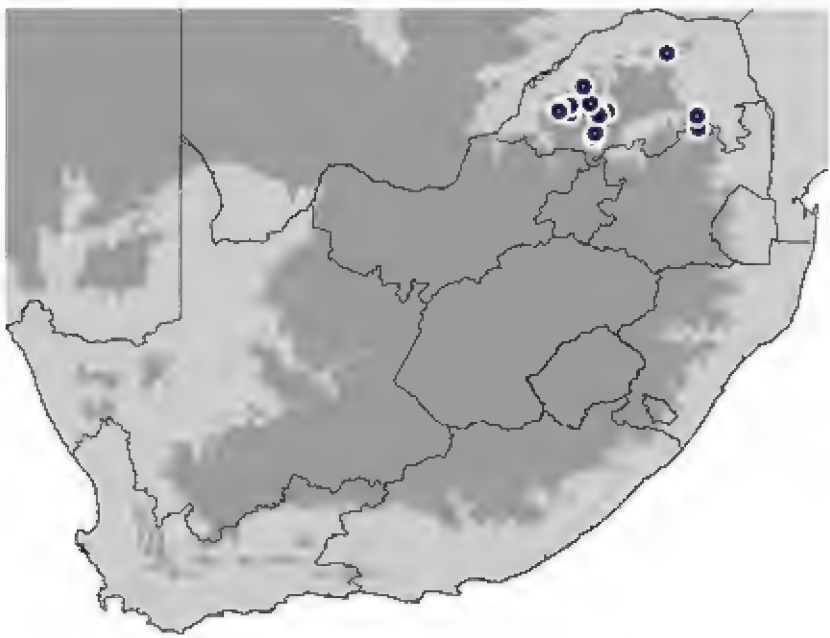
Hindwing length: 20–21 mm

Makabusi Sprite

Pseudagrion makabusiense Pinhey, 1950

Appearance: The Makabusi Sprite is small, slender and blackish, with narrow green thoracic stripes and a violet tip to the abdomen. Face and labrum greyish blue. Anteclypeus greyish blue with indistinct blackish spots. Postclypeus and frons also greyish blue. Head black with bronze sheen and angular violet postocular spots from above, between the postocular spots (but not joining them) is a narrow light green line. Eyes dark brown above, lime green below. Neck black with metallic green sheen and green spots. Thorax blackish with green bronze sheen, distinct narrow light green shoulder stripes, sides black and pale green but covered with whitish pruinescence below. Wings clear. Pterostigmas dark brown to black. Abdomen slender, black with green metallic sheen, pale green below, fine pale ring present at joint of segments 1 and 2. Last quarter of segment 7 and all of segments 8 and 9 dull violet. Segment 10 black, slightly pruinescent. Female with similar markings, pale brown, dark brown and black, with slightly greenish postocular spots.

Field notes: The Makabusi Sprite is highly localised in the Limpopo Province. It also occurs in Angola, Zambia and Zimbabwe. It occurs among tall grasses and reeds at the margins of bush-fringed sluggish reaches of streams and rivers. It perches on sheltered grass stems or reed blades low over the water. On the wing from November to May.

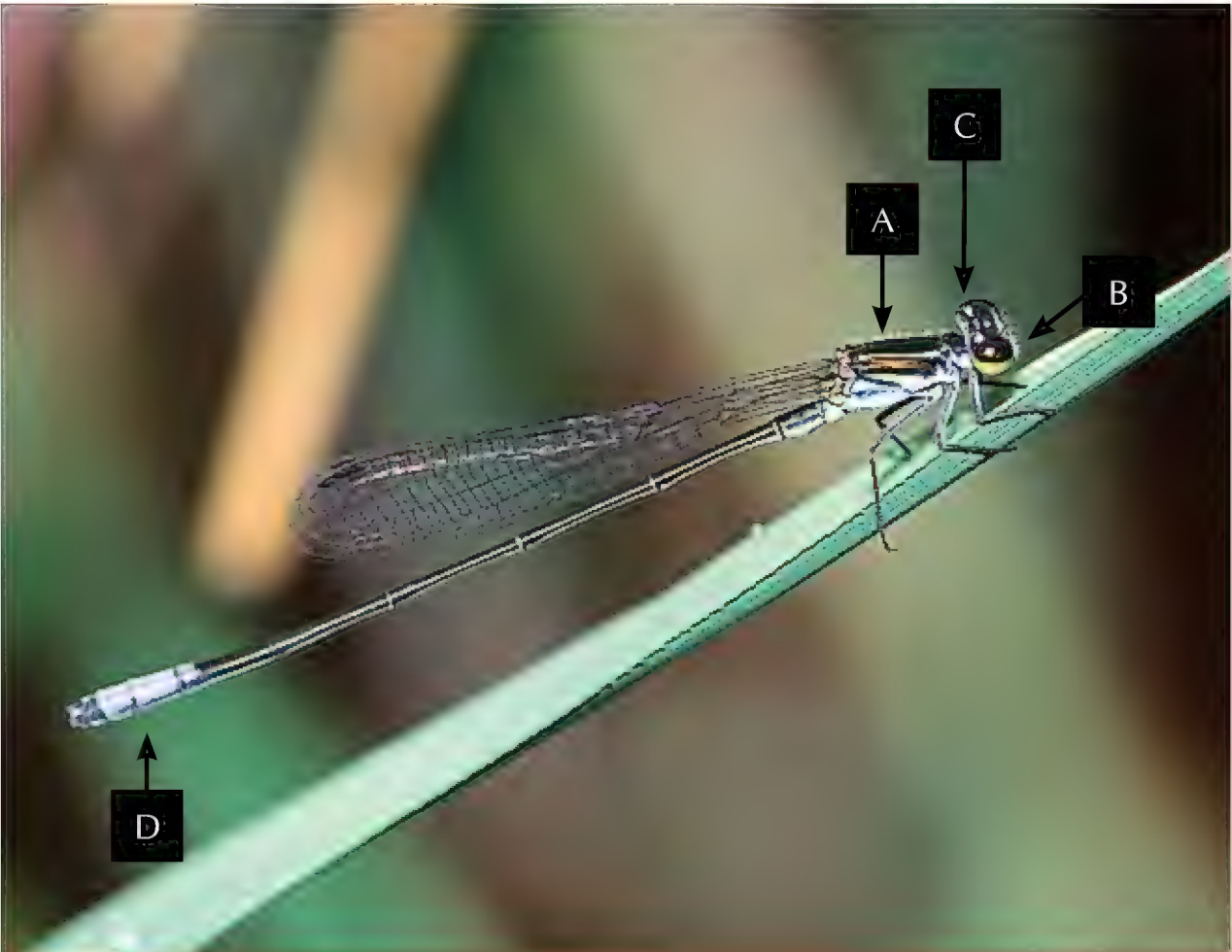
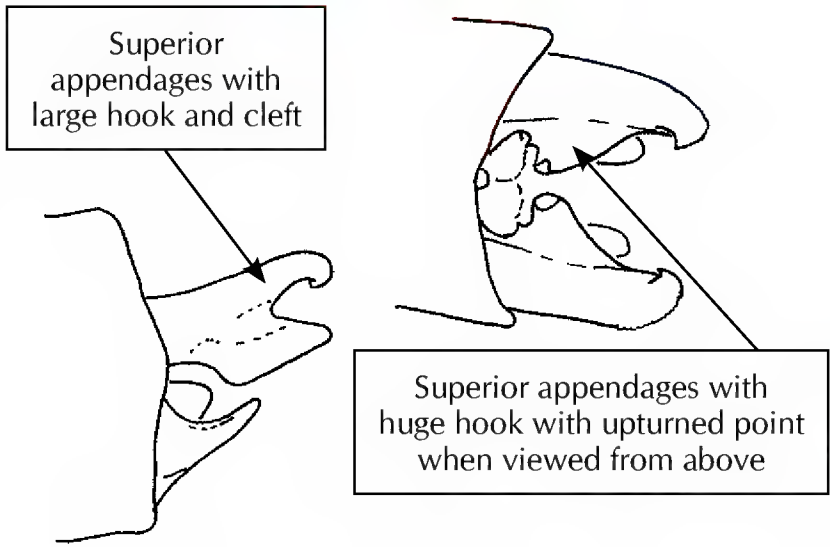


Threat

LC

DBI

5



- Small and slender
 - Narrow green shoulder stripes
 - Violet, wedge-shaped postocular spots
 - Mauve to violet tail tip
- A. Narrow green shoulder stripe
- B. Eyes dark brown above, lime green below
- C. Violet wedge-shaped postocular spots
- D. Mauve to violet tail tip

Body length: 32–35 mm

Hindwing length: 19–20 mm

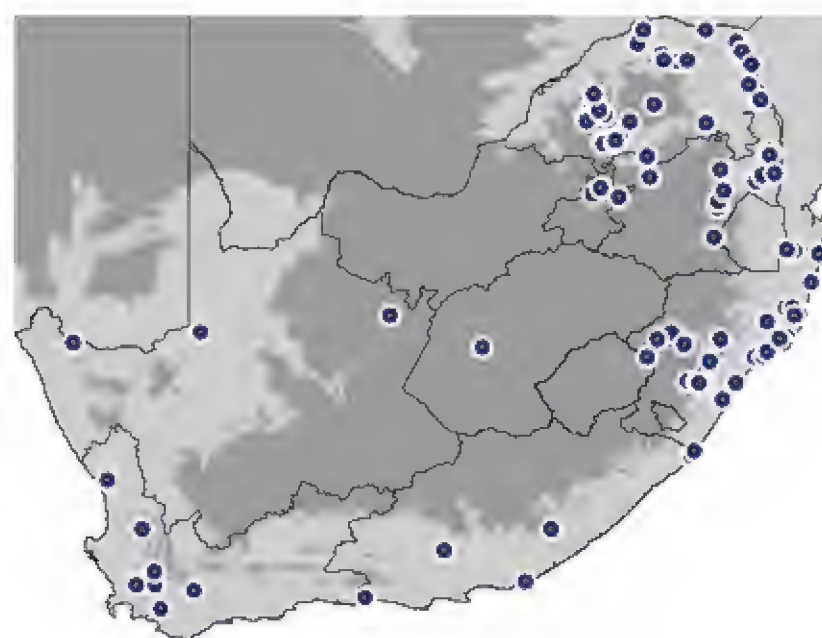


Masai Sprite

Pseudagrion massaicum Sjöstedt, 1909

Appearance: The Masai Sprite is a small red-headed damselfly with a reddish thorax and blue tip to the abdomen. Face orangy red, broken by black lines. Labrum orange to brick red. Postclypeus orange to brick red with black W-shaped marking. Frons orange to brick red with small black crescent. Top of head with a transverse black band, back of head yellowish. Postocular spots large, brick red, joined by a brick red line. Eyes red in front, black behind. Neck black and brick red. Thorax brick red with black stripes above, sides orange, becoming heavily pruinulent light blue below. Area between wing bases heavily pruinulent light blue. Wings clear. Pterostigmas purplish reddish brown. Abdomen mostly black above, yellowish green below. Incomplete yellowish green rings at start of each segment. Segments 8 and 9 bright blue with fine black rings at the end. Segment 10 black above, blue below. Female head and thorax varies from light yellowish brown to purplish brown and black, abdomen greenish light brown and black, heavy pruinoscence between wings and on tip of abdomen.

Field notes: The Masai Sprite is locally common throughout much of South Africa but is rarely seen above 1 400 m elevation. Its range extends to North Africa. It commonly occurs in ponds, pools and sluggish reaches of rivers with an abundance of lilies, sedges and reeds, as well as abundant waterweed and floating algal mats.

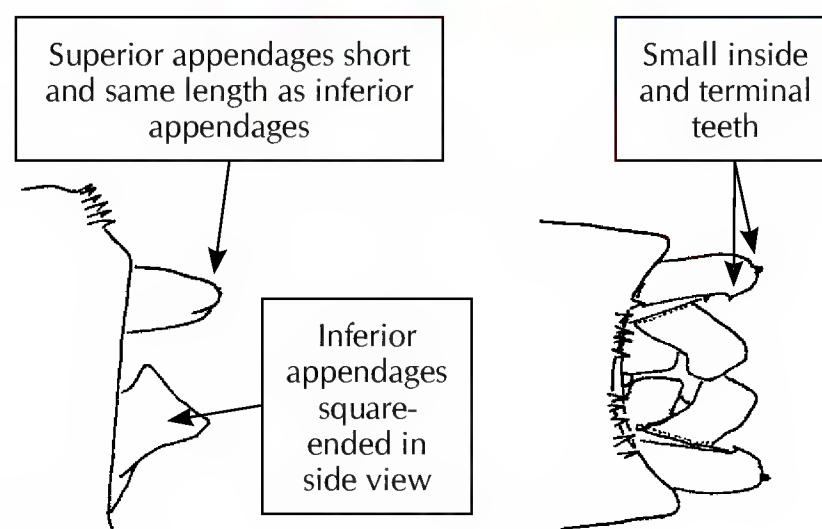


Threat

LC

DBI

1



It perches horizontally close to the water, particularly on lilies, but also on grass stems, small twigs and algal mats away from the margin. On the wing from October to May.



- Distinct red head and thorax
- Ringed abdomen
- Blue tail tip with black rings
- Pools with lilies and waterweed

- A. Red head and thorax
- B. Pterostigmas with purplish hue
- C. Pale blue pruinoscence
- D. Dark abdomen with light rings
- E. Blue tail with black rings

Body length: 31–35 mm

Hindwing length: 16.5–20.5 mm

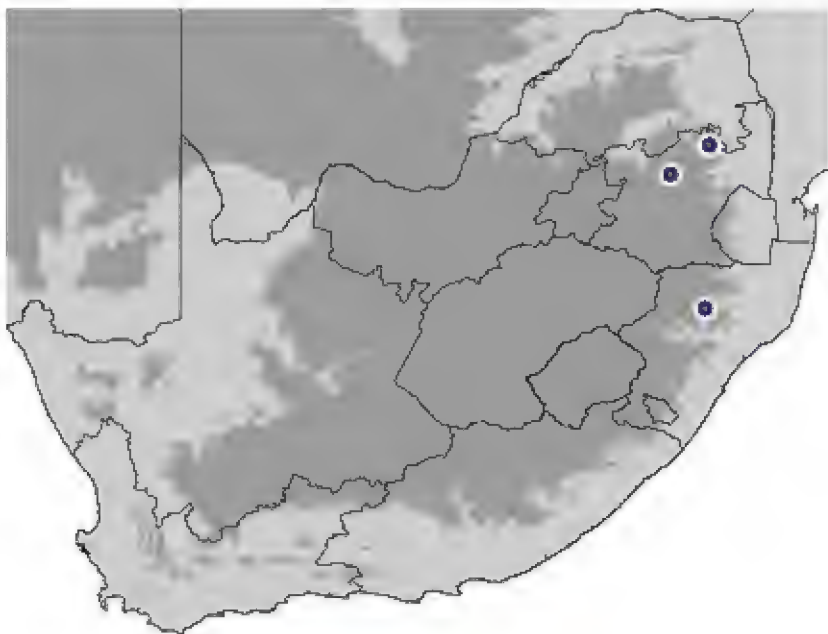


Harlequin Sprite

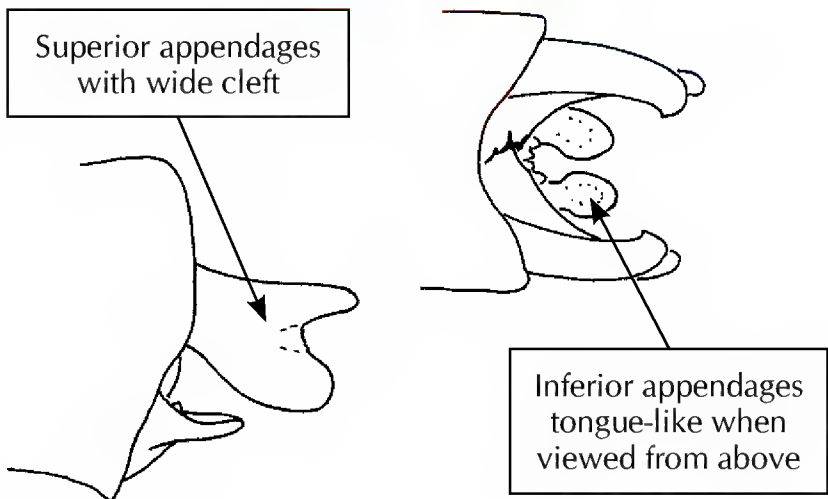
Pseudagrion newtoni Pinhey, 1962

Appearance: The Harlequin Sprite is small and brightly coloured in orange, green and blue. Face orange. Labrum bright orange. Cheeks and postclypeus yellowish orange. Top of head dull black with light orange postocular spots and light orange line between them. Eyes deep reddish brown above, yellowish brown below. Neck black with light orange markings. Thorax dull black with glossy black and light orange stripes above, sides bright light green, lower part bluish green. Wings clear. Pterostigmas reddish brown. Abdomen glossy greenish black above, bluish green below. Second half of segment 7 and all of segments 8 and 9 bright blue. Segment 10 black with a distinctive bright blue heart shape. All blue markings made vivid by being edged with deep black. Superior appendages black. Female with buff and pale green face, top of head dull black, eyes yellowish green with dark brown cap, thorax and abdomen glossy greenish black and bright yellowish green, segments 7 to 9 with splashes of bright blue, segment 10 bright blue above.

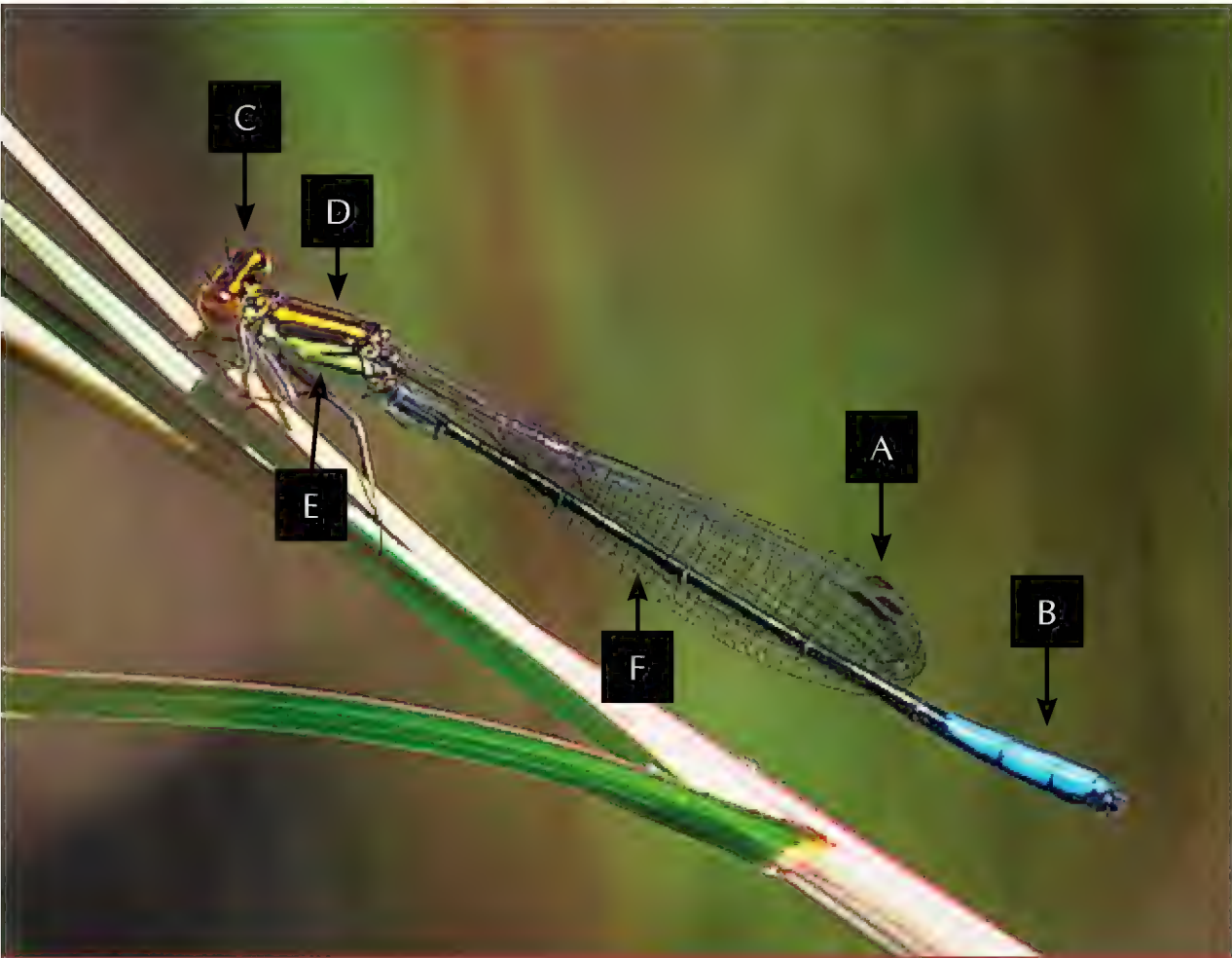
Field notes: The Harlequin Sprite is a rare and highly localised South African endemic. It has only been recorded from northern KwaZulu-Natal at about 1 500 m elevation and on the Mpumalanga escarpment at about 1 250 m elevation. Its preferred habitat has an abundance of tall grasses and reeds overhanging swift rocky montane rivers. Although highly localised, the Harlequin Sprite can occur in large numbers



Threat	DBI
VU	8



at a single locality, with strong rivalry between males among the grass stems. Females occur in the shade of isolated bushes on the river bank. On the wing from December to March.



- Very rare
 - Head orange
 - Thorax with orange and green stripes
 - Blue tail tip extends over 4 segments
- A. Pterostigmas reddish brown
B. Long, bright blue tail tip
C. Orange head with brown eyes
D. Orange stripe
E. Green stripe
F. Black abdomen green underneath

Body length: 32–33 mm

Hindwing length: 18.5–19.0 mm

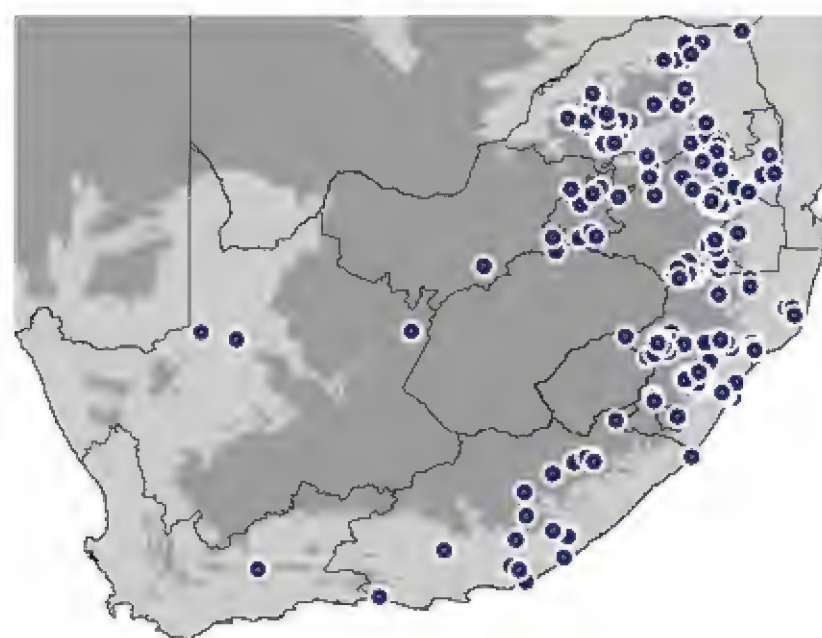


Slate Sprite

Pseudagrion salisburyense Ris, 1921

Appearance: The Slate Sprite is small to medium sized, and all dark slate blue. Face black with some greenish or bluish grey, becoming pruinulent with age. Labrum green, sometimes greenish grey or bluish grey, occasionally with a medium vertical blackish stripe. Head black with distinctive, almost round, bright blue postocular spots from above. Eyes black above, green below. Neck dull slate blue above, green below, turning pruinulent with age. Thorax all dark slate blue with a slight bronze sheen that becomes duller with age from above, no stripes, sides light green becoming heavily pruinulent with age. Wings clear. Pterostigmas deep reddish brown becoming blackish brown with age. Abdomen dull slate blue with the first few segments becoming pruinulent above, greenish below. Segments 8 and 9 deep slightly mauvish blue, becoming pruinulent light grey with age. Segment 10 black becoming pruinulent light grey. Female thorax striped with light greenish olive and dark brown stripes, postocular spots light blue joined by brown bar, abdomen dark greenish brown above, light olive brown below, segments 8 and 9 with light blue patches above, segment 10 blue.

Field notes: The Slate Sprite is common throughout much of South Africa, mostly between 200 and 1 600 m elevation. However, it is scarce in the Western Cape. Its range extends to East Africa. It occurs in sluggish or still reaches of streams and rivers with an abundance of reeds, grasses and herbs. It can be common at some farm dams, as well as at some natural pools and



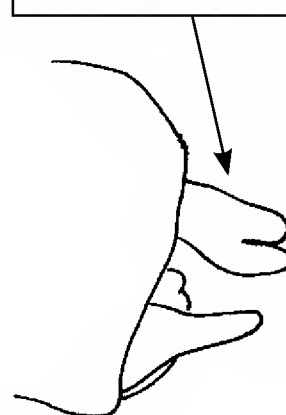
Threat

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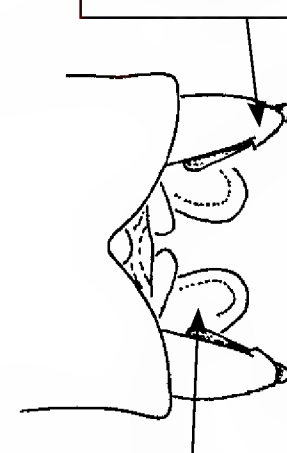
DBI

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Superior appendages like a closed thumb and finger in side view

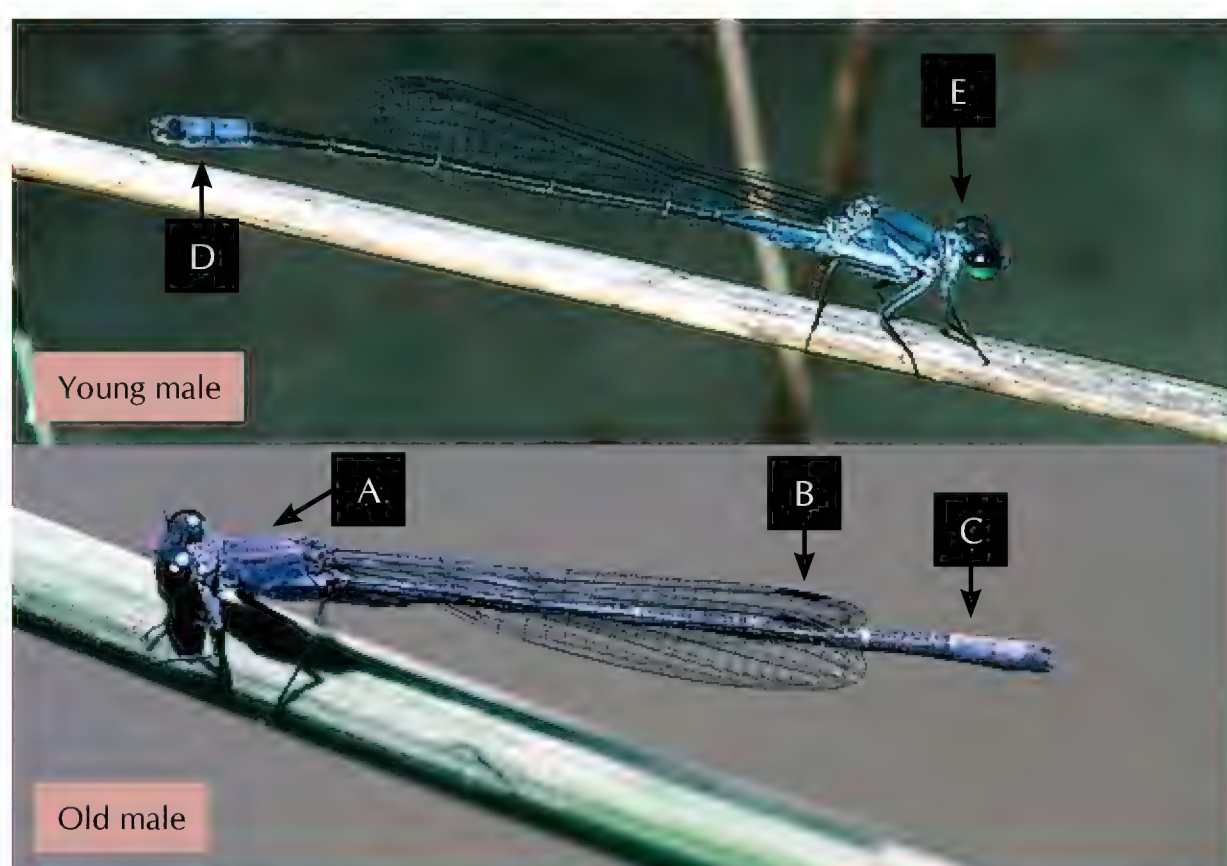


Superior appendages with small hook



Inferior appendages rounded

waterholes. It rests along a grass stem or reed blade overhanging the water. Mating pairs are common. On the wing from September to June with some individuals in July and August.



Young male

Old male

- All dark blue
- Almost round, large blue postocular spots
- Dark reddish brown pterostigmas becoming black with age

- A. Metallic sheen
- B. Pterostigmas blackish
- C. Body up to tail tip all dark pruinulent blue
- D. Blue tail tip, becomes pruinulent dark blue with age
- E. Large, round bright blue postocular spots

Body length: 35–38 mm

Hindwing length: 20.5–21.0 mm

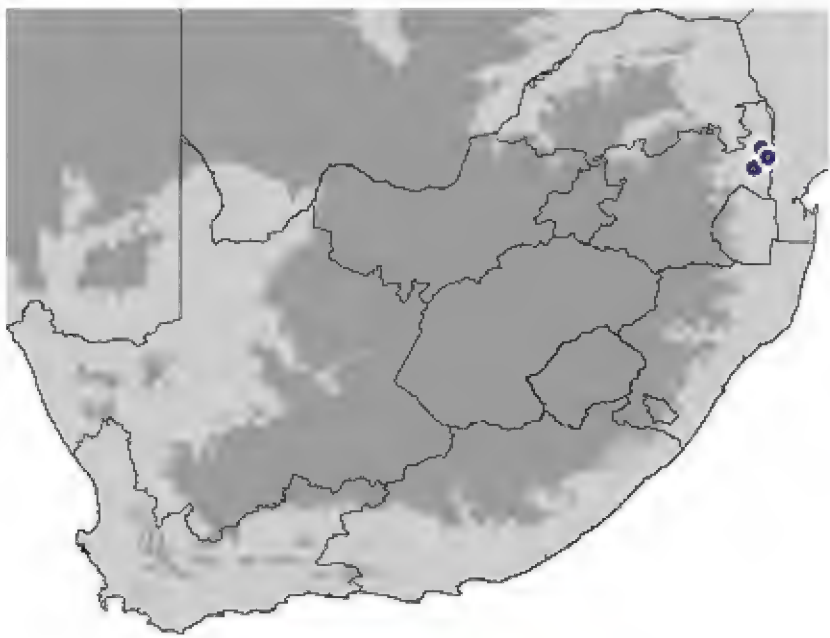


Variable Sprite (Rufous Sprite)

Pseudagrion sjoestedti Förster, 1906

Appearance: The Variable Sprite is a small brick red species. Face and head above brick red with some black tracery. Narrow black bar across top of head forms border of large reddish postocular spots, which are linked by pale brown bar. Neck black with brick red spots. Thorax brick red with fine blackish stripes above, greyish green with dusting of pruinescence below. Wings clear. Pterostigmas brick red. Abdomen slender, blackish with slight bronze sheen, greenish below. Segments 1 and 2 pruinescent. Segments 8 and 9 black with bright blue rings. Segment 10 black. Female greenish brown with black stripes.

Field notes: The Variable Sprite has only been recorded from the southeastern corner of the Kruger National Park. This species occurs, as various colour morphs, to East and West Africa. It occurs at pools under trees on the edge of rocky savanna rivers. It perches on reeds in sun flecks over the water. On the wing from February to May, but may in reality have a longer flight period than this.

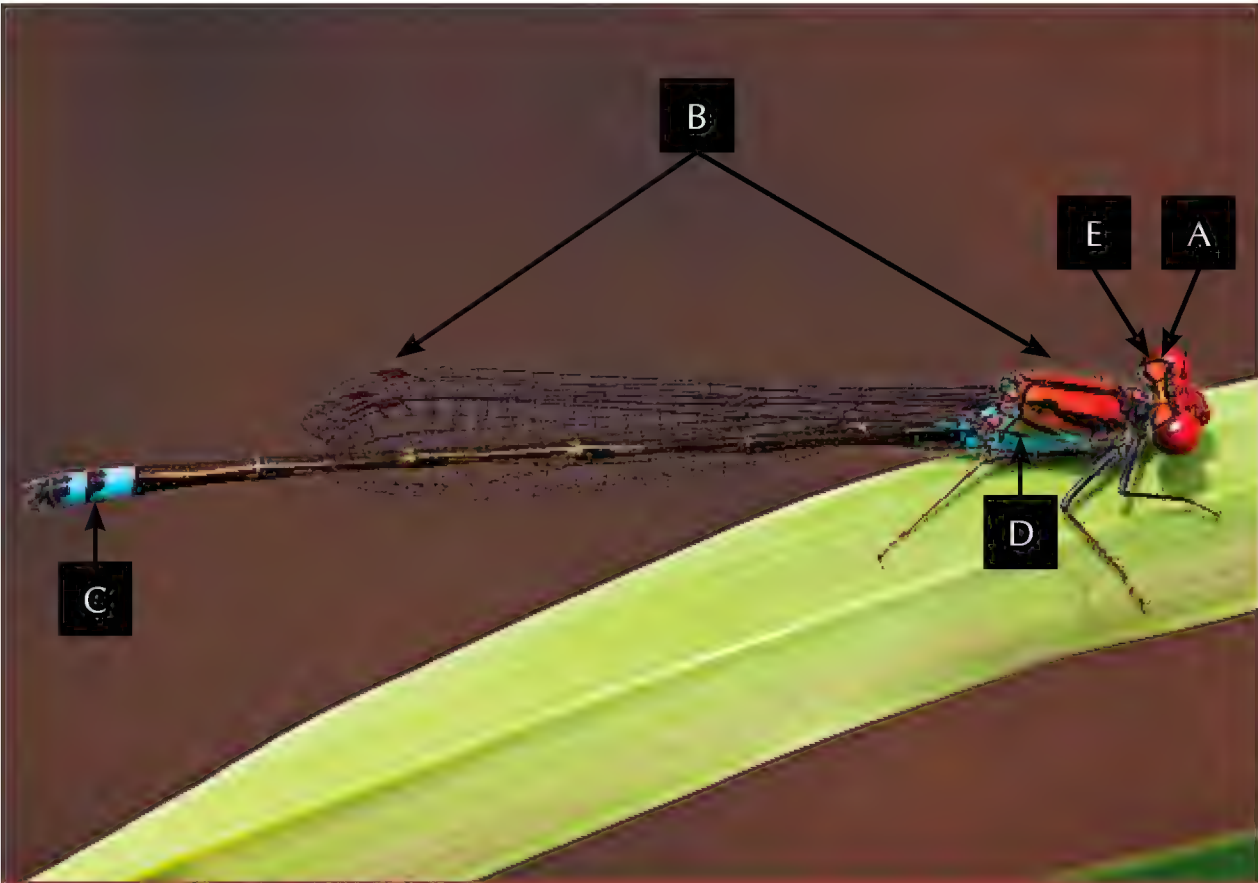
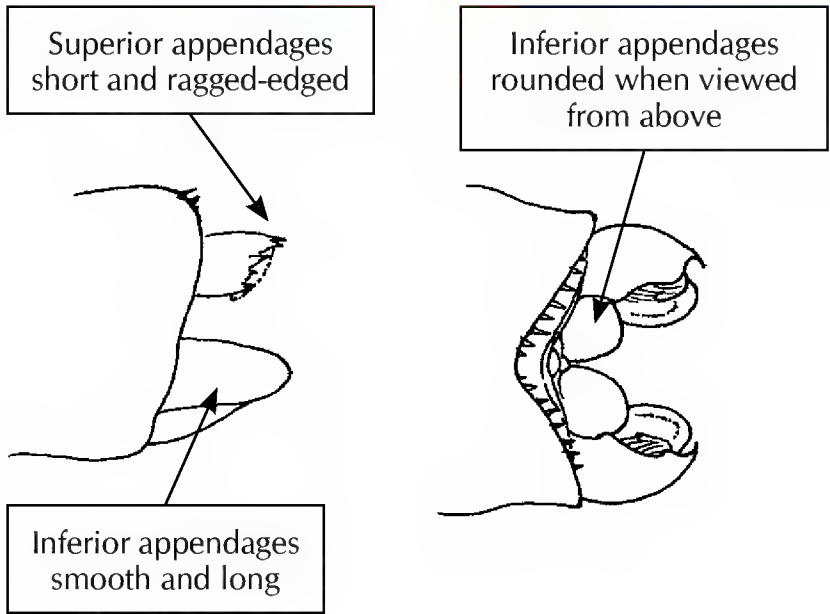


Threat

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6



- Brick red head and thorax
 - Blue and black-ringed tail tip
 - Brick red pterostigmas
- A. Brick red postocular spots with a pale brown bar between them
- B. Brick red thorax and pterostigmas
- C. Bright blue tail tip with angular rings
- D. Thorax greyish green below
- E. Narrow black band on top of head

Body length: 33–34 mm

Hindwing length: 20.0–20.5 mm



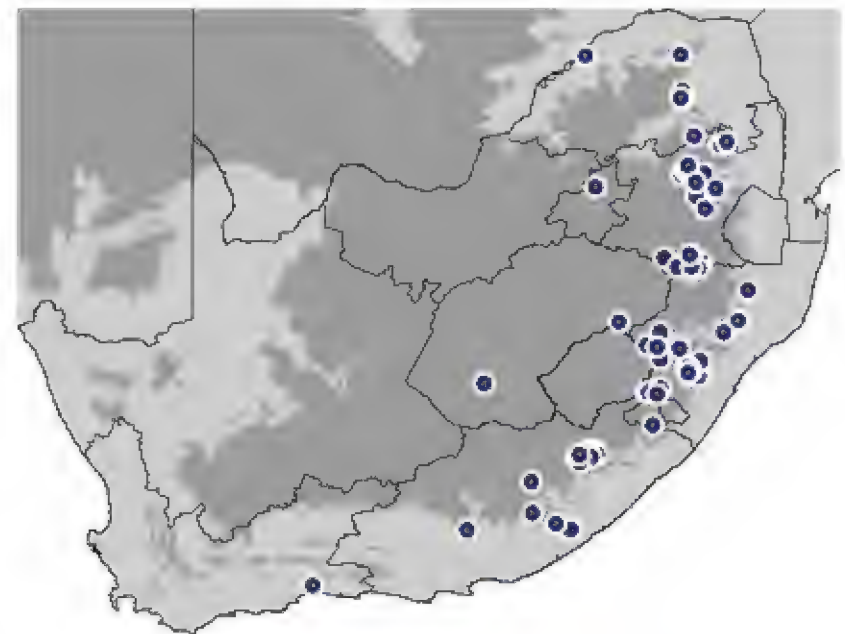


Upland Sprite (Powder Sprite)

Pseudagrion spernatum Sélys, 1881

Appearance: The Upland Sprite is medium sized and all dark slate blue. Face greenish with heavy white pruinescence. Labrum green or greenish blue with three basal black spots, edged with black. Cheeks lime green. Anteclypeus green to greenish blue. Head black above, heavily pruin- escent in front. Postocular spots large, roundish, bright blue. Eyes black above, lime green below. Neck dark slate blue above with greenish sides that become pruin- escent. Thorax dark slate blue becoming heavily whitish pruin- escent, sides light green. Wings clear. Pterostigmas bright red- dish brown. Abdomen dark slate blue above, greyish blue below, becoming heavily whitish pruin- escent with age. Female striking, light sky blue and black with distinct round blue postocu- lar spots, abdomen blackish above, greenish be- low. Segments 8 to 10 bright blue above.

Field notes: The Upland Sprite is widespread and locally abundant throughout the mountains from the southern Cape to Mpumalanga and the Limpopo Province. It occurs between 800 and 2 000 m elevation. It does not occur in the south- western corner of the Western Cape. It occurs north to Ethiopia in various forms. Its preferred habitat is along clear, fast flowing mountain streams and shallow rivers with an abundance of tall grasses, reeds and herbs along the banks. It is easy to see in the field with its powdery blue body contrasting with reed blades or sticks on which it sits overhanging the water. The female

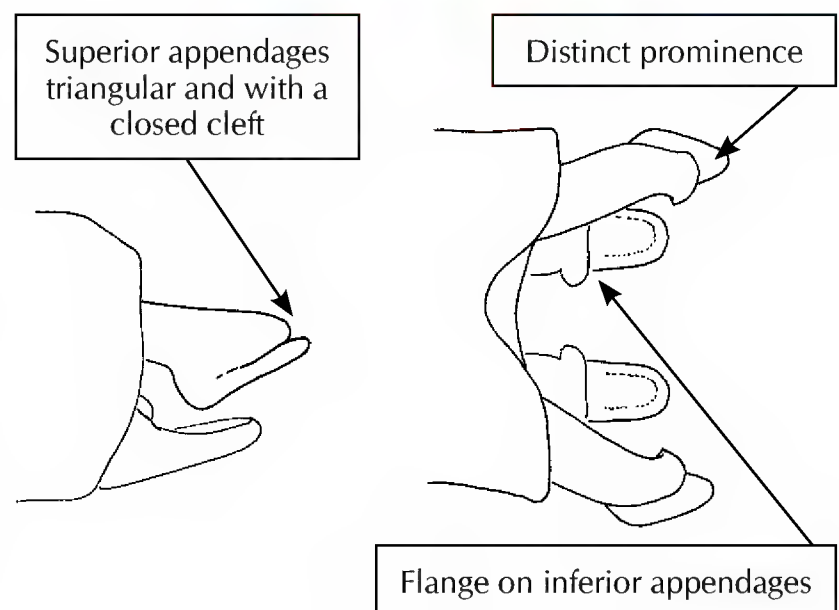


Threat

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3



is also conspicuous, often seen with males and close to the water. On the wing from October to May with the occasional individuals from June to September.



- All powdery dark blue from above
- Abdomen all one colour when mature (bright blue tip when young)
- Mountain streams

- A. Pterostigmas bright reddish brown
- B. Tip of abdomen all powdery dark blue when mature
- C. Sides of thorax green
- D. Labrum green to greenish blue
- E. Eyes black above, green below
- F. Large round, bright blue postocular spots

Body length: 38–43 mm

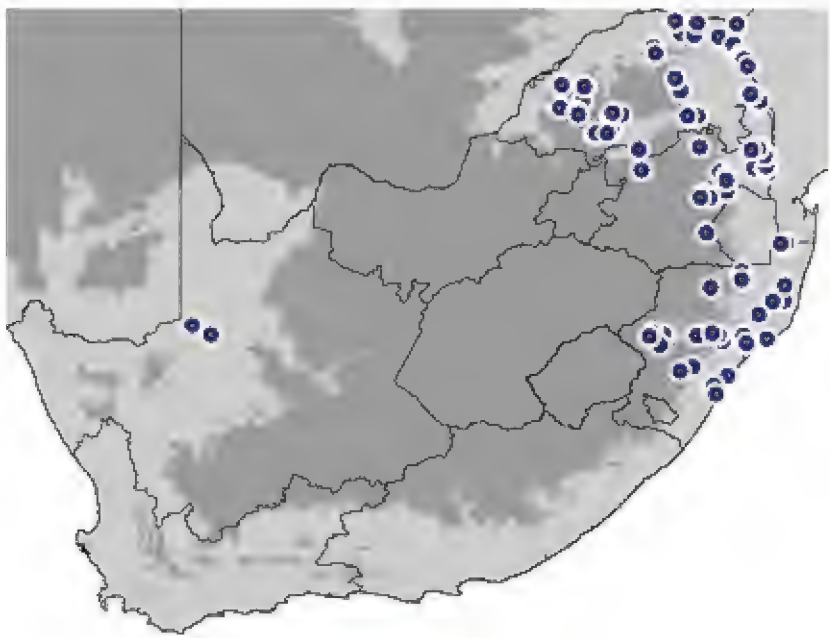
Hindwing length: 23.0–26.5 mm

Cherry-eye Sprite

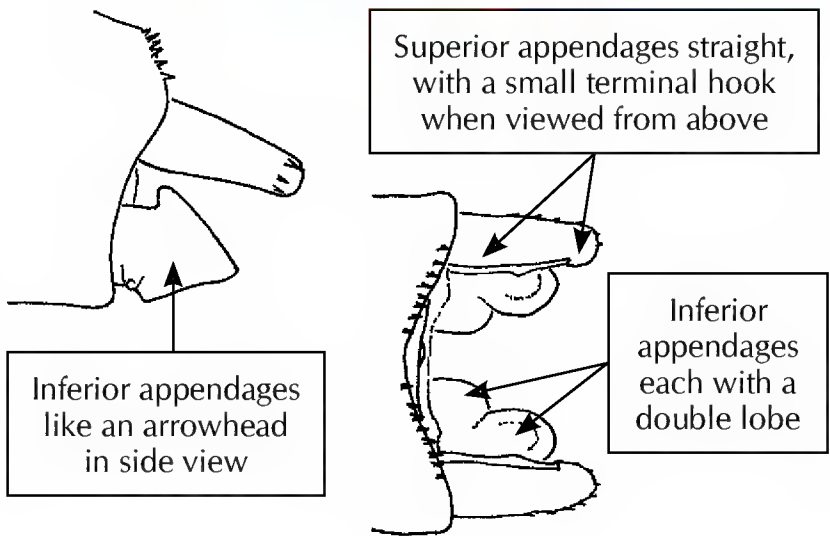
Pseudagrion sublacteum (Karsch, 1893)

Appearance: The Cherry-eye Sprite is medium sized with a red face and a multi-coloured body. Face brick red with fine black tracery. Labrum brick red. Frons and vertex in front brick red, rest of head blackish with deep mauve to reddish brown postocular spots joined by bar of same colour. Back of head bright green, darkening with age. Eyes bright red in front, black and green behind. Neck black with purple brown spots, sides pruinescent greyish green. Thorax striped bluish black and reddish brown to mauvish brown above, becoming purplish brown with age, sides light blue becoming increasingly dark and pruinest with age. Bright pruinescent white spots between wing bases. Wings clear. Pterostigmas yellowish brown to reddish brown, becoming purplish brown with age. Abdomen black with a bronze sheen above, pale green below, central abdominal segments have black wedges and fine pale green rings, giving the abdomen a striped appearance when viewed from side. Segments 8 and 9 bright blue with fine black ring at end of both segments. Segment 10 black above, blue at sides. Female light brown above, pale greenish brown below, abdomen with a series of increasing large black spots and stripes on each segment giving end of abdomen a blackish look.

Field notes: The Cherry-eye Sprite occurs from central KwaZulu-Natal to Mpumalanga and Limpopo Province. It also occurs along the Orange River in the Northern Cape. It occurs north to West Africa, Arabia and Israel, and also occurs on Mayotte Island in the Indian Ocean. It inhabits swift savanna rivers with glides and riffles,



Threat	DBI
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with an abundance of grasses, reeds and herbs along the banks. Occasionally seen along small streams. It perches on algal mats, twigs, weeds and reeds, and sometimes on boulders in the fast-flowing current. On the wing from November to May.

Young male

Old male

- Face and front of eyes red
- Thorax purple to purplish blue above
- Strong light green rings on abdomen
- Bright blue tail tip with black ring

A. Face and front of eyes red
B. Top of thorax maroon to purple
C. Strong light green rings
D. Side of thorax blue
E. Pterostigmas reddish brown
F. Pterostigmas purplish
G. Thorax pruinescent dark blue to purple
H. Tip of abdomen bright blue with fine black ring

Body length: 37–41 mm

Hindwing length: 21.5–22.5 mm

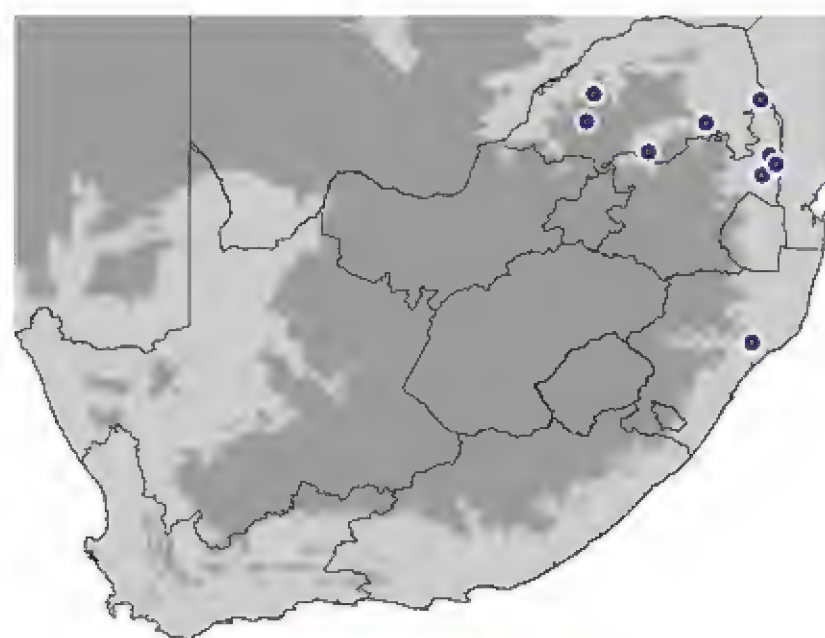


Blue-sided Sprite (Sudan Sprite)

Pseudagrion sudanicum Le Roi, 1915

Appearance: The Blue-sided Sprite is small, mostly black with yellow stripes. Face rusty brown, postclypeus with black dashes. Head rusty brown in front and black behind when viewed from above. Frons with black crescent. Postocular spots triangular, large, bright blue, fine rusty bar present between postocular spots, not quite touching them. Eyes rusty brown above, light brown below. Neck black with rusty spots. Thorax black with deep yellow stripes above, sides sky blue, sometimes brownish especially when young. Distinct blue spots between wing bases. Wings clear. Pterostigmas bright yellowish brown. Abdomen fairly slender, black with greenish sheen. Segment 1 with bright blue saddle. Segment 2 with bright blue pointed dash. Fine pale yellow ring present at start of each of segments 4 to 6. Segments 8 and 9 bright blue. Segment 8 with two tiny black dots and black, finely spiked terminal ring. Segment 9 with two tiny black dots and scallop-edged semi-circular black saddle. Segment 10 black. Female similar to male, overall dull brown, postocular spots dull greenish blue, thorax greenish brown with slight bluish hue, blue spots present between wing bases, segment 1 with blue saddle, no blue on segment 2, segments 4 to 6 each with fine yellow rings, segments 8 and 9 bright blue.

Field notes: The Blue-sided Sprite occurs in northern KwaZulu-Natal, Mpumalanga lowveld and Limpopo Province. Its range extends to West Africa and to Sudan. Its habitat is tall reeds, grasses and small bushes beside pools at the margins of

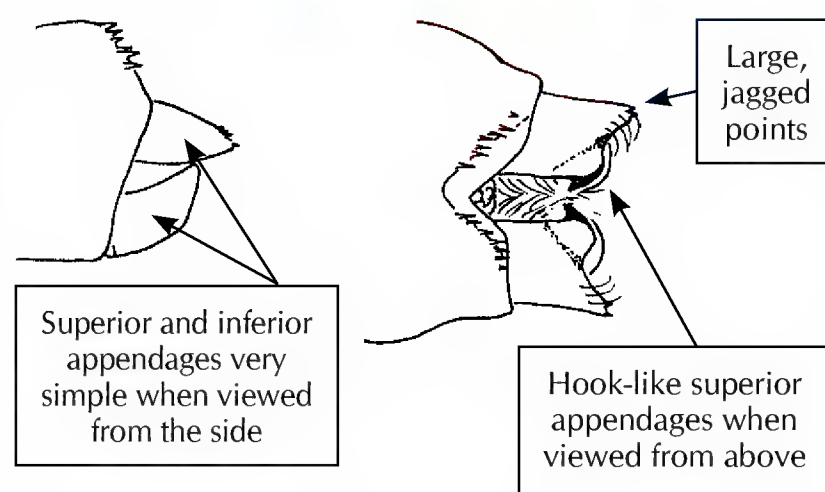


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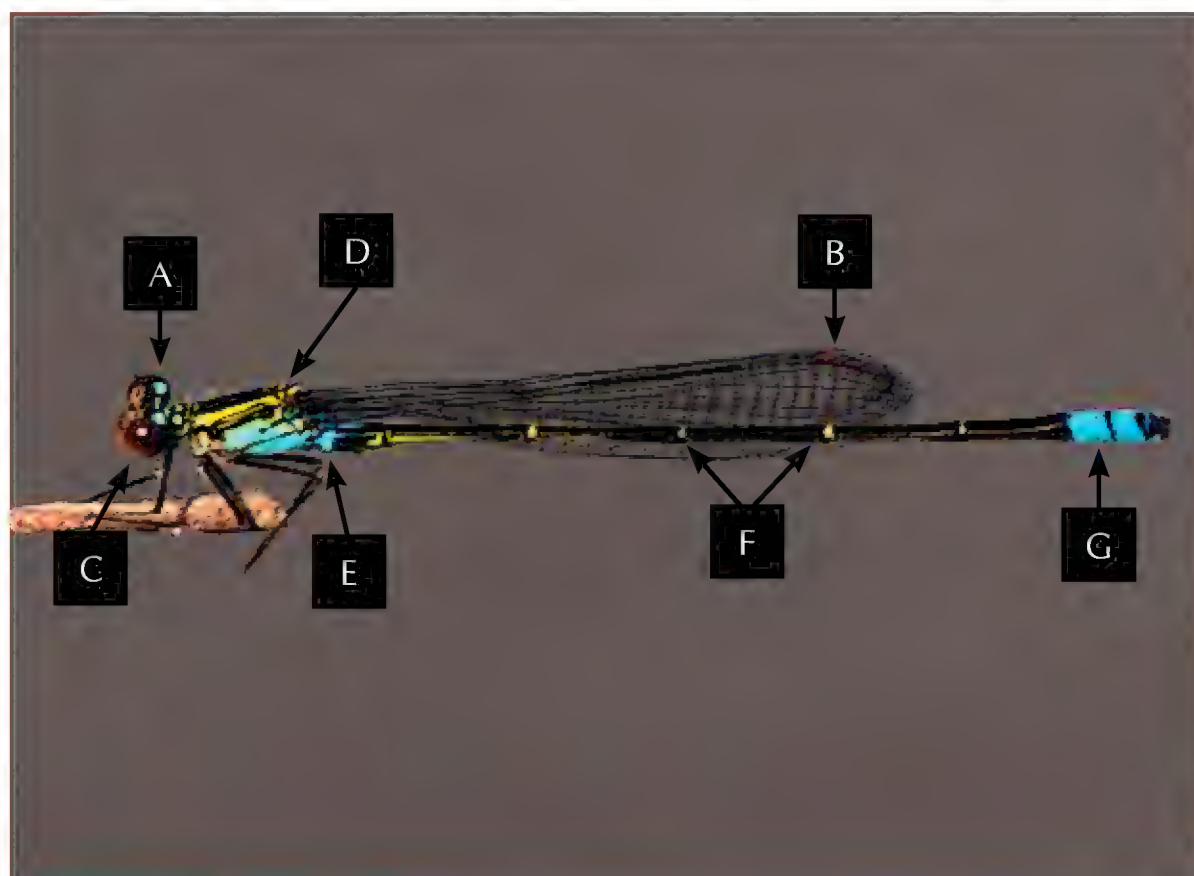
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DBI

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hot savanna rivers. The Blue-sided Sprite is very alert as it moves quickly and close to the water surface when disturbed. It perches on grass stems or low bushes over water. The male and female are often seen together. On the wing from November to May.



- Face and front of eyes rusty red
- Thorax above yellow
- Strong light green rings on abdomen
- Bright blue tail tip with black ring

- A. Large, bright blue postocular spots linked by a yellow bar
- B. Yellowish brown pterostigmas
- C. Brown eyes
- D. Yellow and blue thorax
- E. Blue abdominal saddle
- F. Yellow rings
- G. Bright blue tail tip

Body length: 34–35 mm

Hindwing length: 20 mm

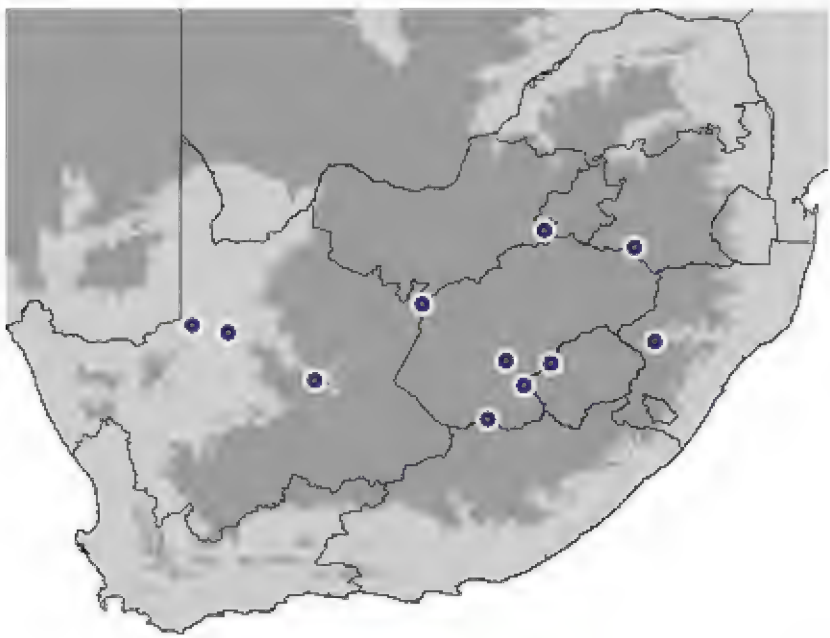


Vaal Sprite

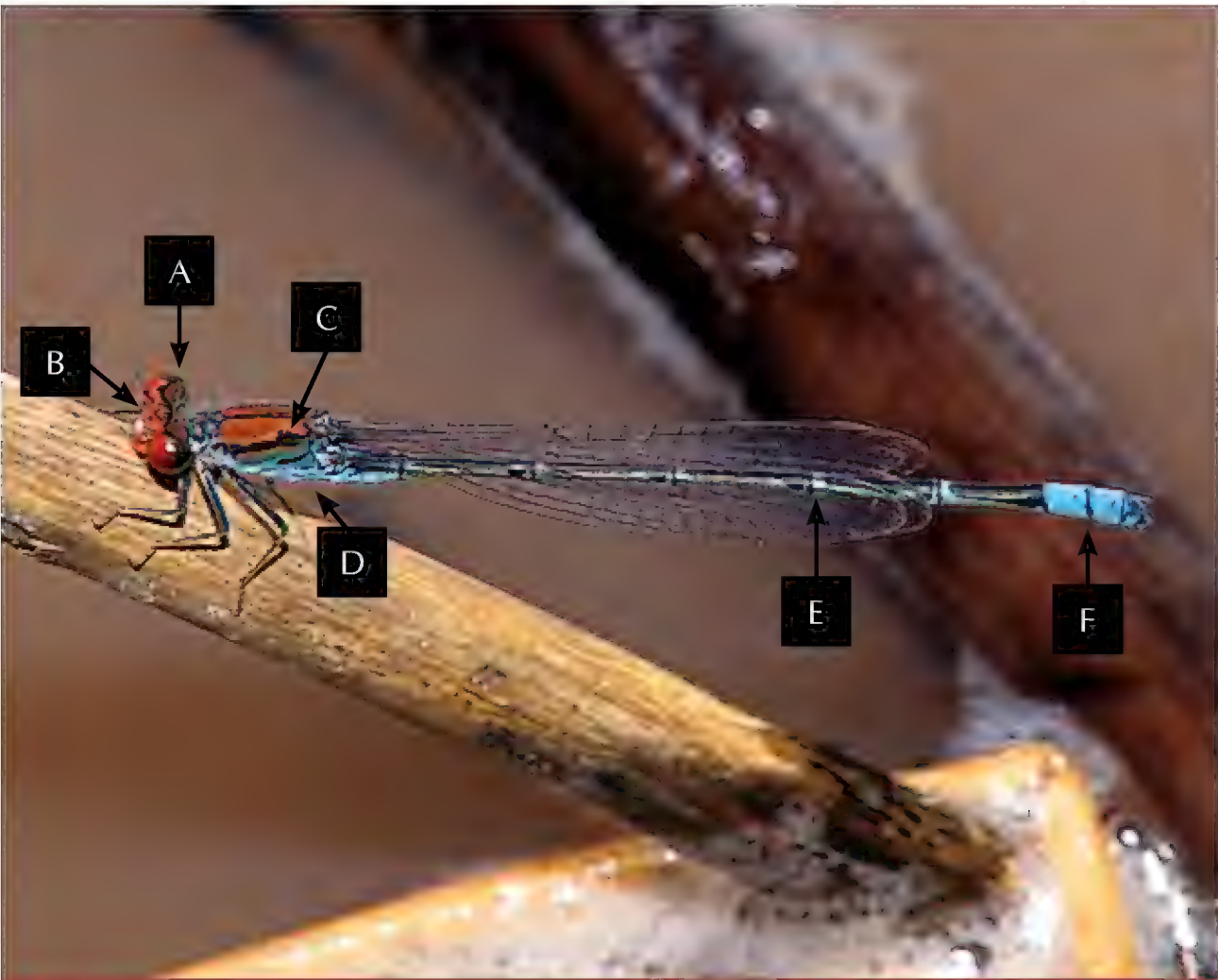
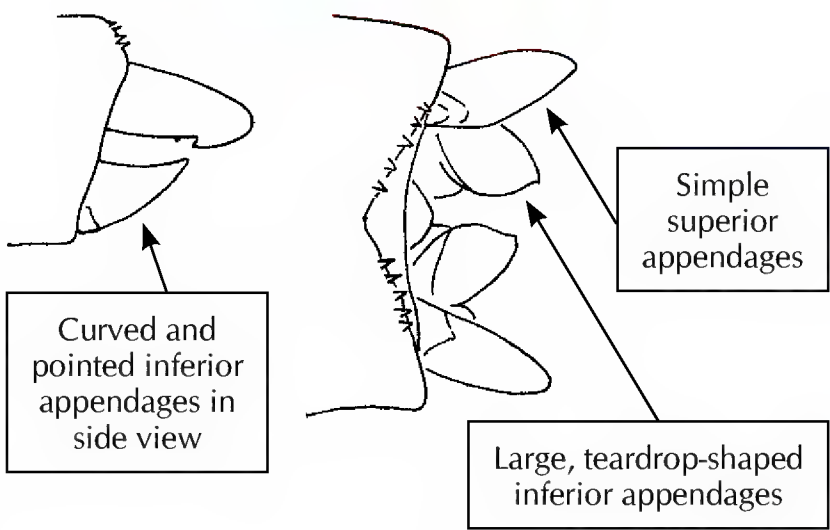
Pseudagrion vaalense Chutter, 1962

Appearance: The Vaal Sprite is medium sized with a bright orange head and thorax. Face bright orange red. Frons orange red. Head dull black above with very large dull greenish brown postocular spots linked by bar of same colour, back of head pale green. Eyes bright red in front, black behind and above, pale green behind below. Neck dull black with rusty brown spots. Thorax bright rusty to reddish brown above with fine black stripes, sides greyish blue or green, becoming heavily pruinose below. Pruinescent pale blue spots present between wing bases. Wings clear. Pterostigmas rusty brown to reddish brown. Abdomen shiny black above, light sage green below. Fine pale green rings present at beginning of each of segments 3 to 7. Segments 8 and 9 bright blue with fine terminal black rings. Segment 10 blue with large black saddle. Female light brown with fine black lines on thorax, top of abdomen dull black, light yellowish brown below.

Field notes: The Vaal Sprite is endemic to the central Highveld of South Africa between 1 000 and 1 600 m elevation. It occurs along large rivers with thick reed beds and some trees along their margins and can be seen gliding over the swift-flowing parts of the river. It perches on boulders, twigs or reeds a little away from the bank where the water is fast flowing but not broken. Females frequently perch in willow trees. On the wing from October to April.



Threat	DBI
LC	5



- On large, highveld rivers
 - Red face
 - Huge greenish brown postocular spots
 - Thorax rusty above
- A. Huge, dull greenish brown postocular spots linked by a bar
- B. Red face
- C. Fine black lines
- D. Side of thorax greyish blue-green
- E. Distinct greenish rings
- F. Blue tail tip with only a fine black ring

Body length: 37–38 mm

Hindwing length: 21.5–22.5 mm

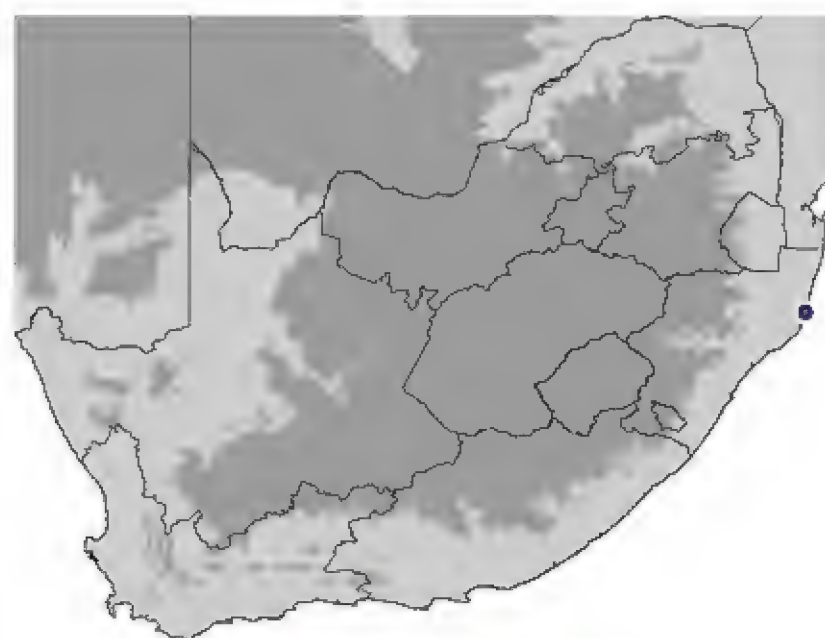


Opal Slim

Aciagrion dondoense Dijkstra, 2007

Appearance: The Opal Slim is medium sized, very slender opal and blue. Face dull greenish blue. Labrum sky blue. Anteclypeus opal with a sky blue centre. Cheeks, postclypeus and front of frons opal. Head greyish blue above with two blackish prongs, the hind margins of which form the front margins of two large bright blue postocular spots. Hind margins of postocular spots form a black bar and black spot adjacent to each eye. Eyes greyish blue in front above, light blue above behind, lime green and turquoise below behind. Neck with sky blue front margin, rest opal with some black markings. Thorax greenish blue above, sides bright blue, fine black lines present, one along top, one along each side, two black dots on each side. Blue spots present between wing bases. Wings clear. Pterostigmas very short, rounded, dark greyish brown with fine whitish borders. Legs dull pink. Abdomen long, very slender, glossy black above. Segments 1 to 3 bright blue at sides. Segments 4 to 7 pinkish brown at sides. Segments 8 to 10 bright blue. Appendages long, black, divergent. Female's face dull opal, labrum pale pink, anteclypeus and postclypeus dull pinkish green, head and postocular spots greyish sage green above, eyes dull opal above and pale green below, neck and thorax dull opal above and green along sides, abdomen blackish above, segments 1 to 7 pale greenish at sides, segments 8 to 10 pale sky blue.

Field notes: In South Africa, the Opal Slim has only been recorded from the iSimangaliso Wetland Park in northern KwaZulu-Natal. Its range extends to East Africa. Its habitat is sedge-, reed-

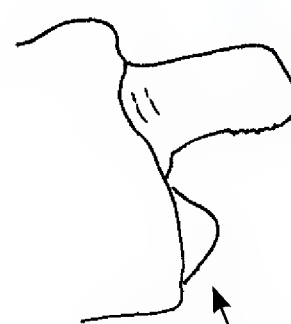


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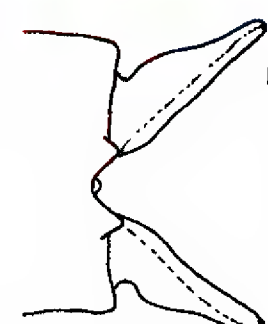
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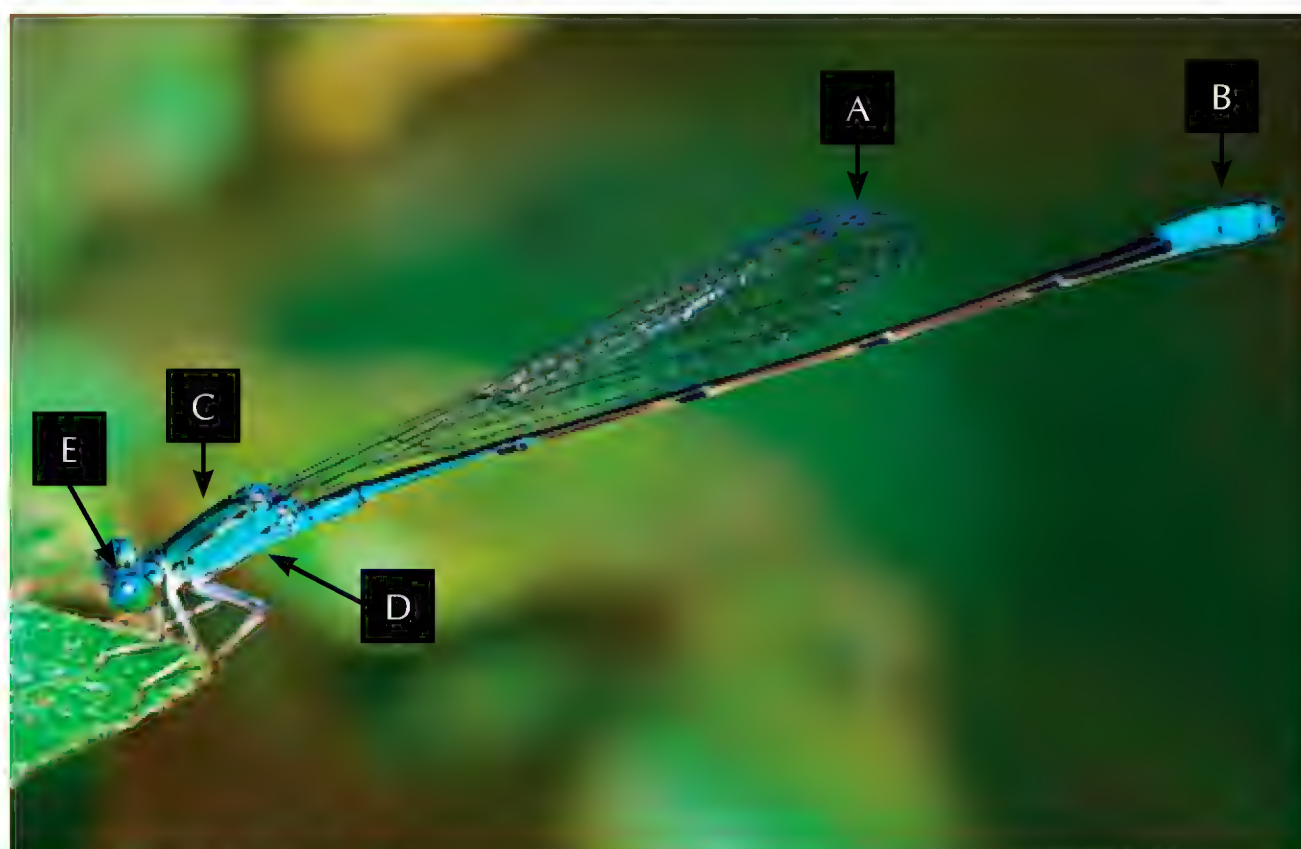


Very short inferior appendages



Widely diverging and pointed superior appendages when viewed from above

and grass-filled marshes and pools with nearby bushes and trees. Its flight is weak as it moves low over the water from one stem to the next and it is also seen away from the water in the dark recesses of fringing bush. On the wing in all months of the year but is most common in the summer months.



- Slender
- All blue tail tip
- Thorax blue at sides

- A. Pterostigmas grey, short and rounded with fine whitish borders
- B. Bright blue tail tip
- C. Fine broken black lines
- D. Blue side
- E. Large, blue postocular spots

Body length: 37–38 mm

Hindwing length: 20.5 mm



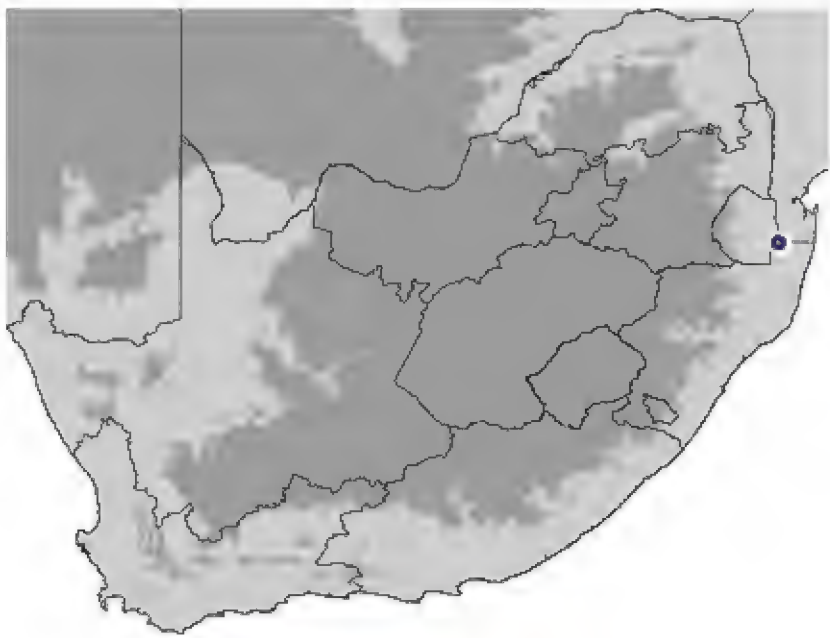
Graceful Slim (Emerald-striped Slim)

Aciagrion gracile (Sjöstedt, 1909)

Appearance: The Graceful Slim is medium sized, very slender, with a bright emerald green and black thorax. Face bluish green. Labrum bluish green with a central and two lateral black dots. Cheeks bluish green. Anteclypeus bluish green with fine brown tracery. Postclypeus black with bluish green margin and two bluish green triangles. Frons green in front. Head matt black from above with large green triangular postocular spots between, green bar almost connecting but not quite touching postocular spots. Eyes bright green with small black cap. Neck black above with green front margin and large green spots on sides. Thorax black above, bright emerald green with fine black stripe at sides, buff below. Area between wings black with green dots. Wings clear, distinct brown smudges in cells behind pterostigmas. Pterostigmas very short, especially in hindwing, smoky brown with fine whitish borders. Abdomen very slender, metallic black above, bluish green sides to segments 1 to 4. Segments 8 to 10 bright blue. Segment 10 with fine black margin with a notch in it. Appendages short, conical in side view. Female with same patterning as male, pale green and black on head and thorax, characteristic salmon-pink abdomen tip.

Note: this species has recently undergone taxonomic revision and in South Africa was formerly known as *Aciagrion pinheyi*.

Field notes: The Graceful Slim is only known from northern KwaZulu-Natal. It extends to East Africa, and possibly West Africa. Its habitat is

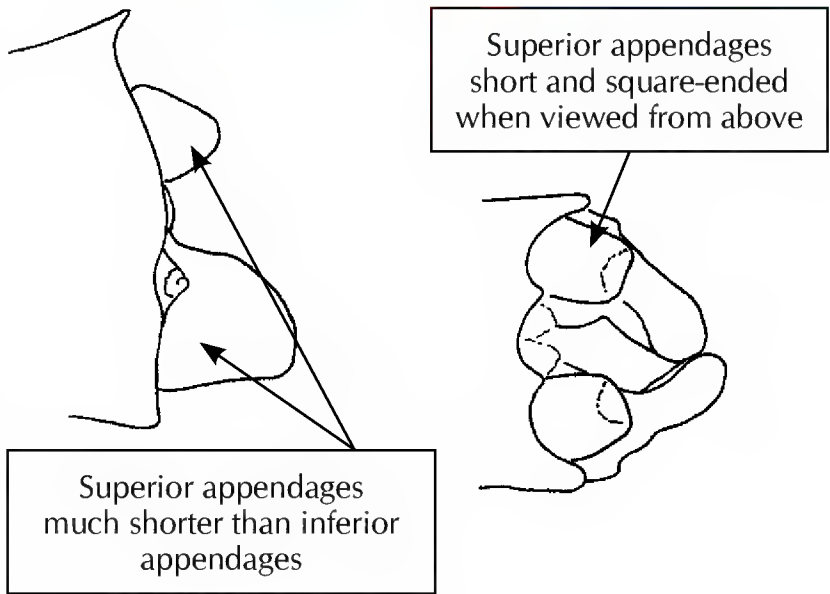


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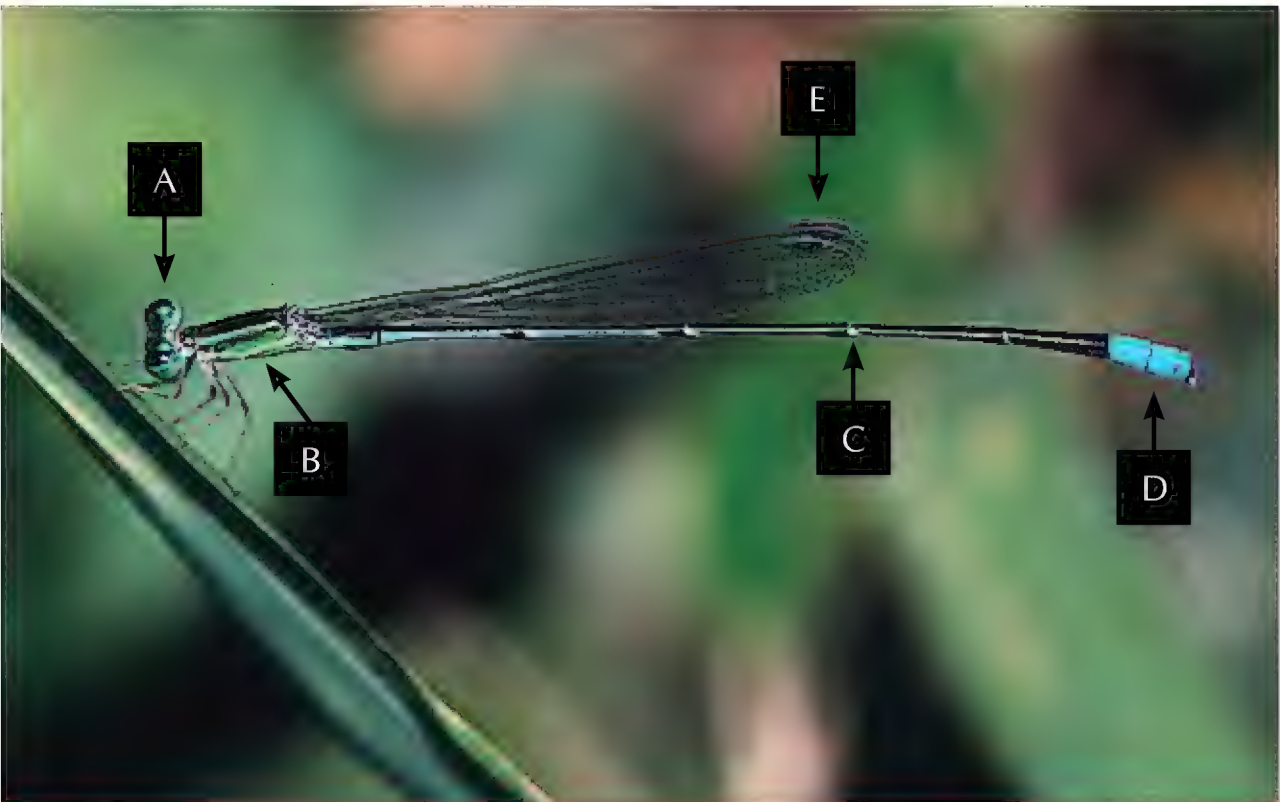
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grassy and reedy pools and pans among thick bush in lowland hot savanna. The male flits and glides among thick bush and tall grasses at the pool margin while the female cruises among the tall grasses and reed stems in the pool. On the wing from December to April.



- Slender
 - All blue tail tip
 - Green thorax and sides
- A. Large green postocular spots
B. Green sides
C. Blue rings
D. Bright blue tail tip
E. Pterostigmas dark brown, short and rounded, with fine whitish borders and surrounded by black smudges

Body length: 37–39 mm

Hindwing length: 20.0–21.5 mm



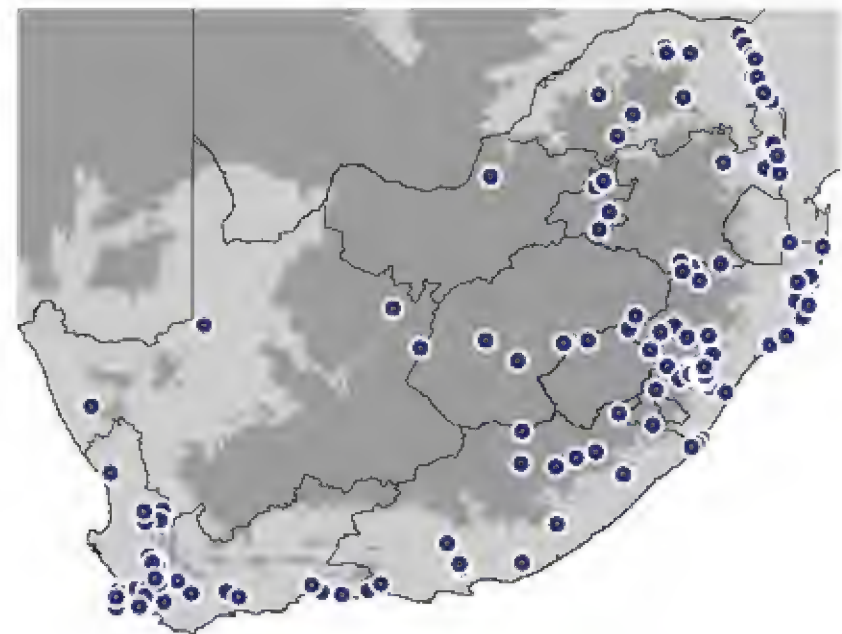


Tropical Bluetail (Marsh Bluetail)

Ischnura senegalensis (Rambur, 1842)

Appearance: The Tropical Bluetail is small, slightly hairy and brightly coloured blue, greenish blue and shiny black. Face greenish blue and black with fine covering of whitish hairs. Labrum green or greenish blue with black base and edged in yellow. Anteclypeus green or greenish blue. Postclypeus shiny black, finely edged in light green. Frons light green. Head dull black from above with bronze sheen, with two round bright blue postocular spots. Eyes black above, greenish blue below. Neck shiny black above, green on collar and below. Thorax with distinct hairy down over shiny black surface with mauve sheen, sharply defined yellowish to greenish (sometimes blue) stripes, sides bright light green or greenish blue (sometimes sky blue). Wings clear. Pterostigmas blackish in inner half, bright blue in outer half. Segments 1 to 7 shiny black above, segment 2 with distinct metallic sheen. Fine bright blue ring present between segments 1 and 2. Segment 1 and especially segment 2 with round blue patches that are continuous with the light area below when seen from side. Segments 3 to 7 buff below, segment 8 bright blue, segment 9 shiny black above and blue below, segment 10 shiny black above and buff below. Hind margin of segment 10 with raised process with two peaks. Inferior appendages prominent, pointed, with black tips. Female has two colour forms one of which is bluish and very similar to male. The other form is bright rufous brown and black, mostly black along thorax and last eight segments of abdomen from above, thorax almost entirely rufous from side. Postclypeus shiny black and top of head metallic black contrasting strongly with pale band running across front of frons in both forms.

Field notes: The Tropical Bluetail is very common throughout much of South Africa up to

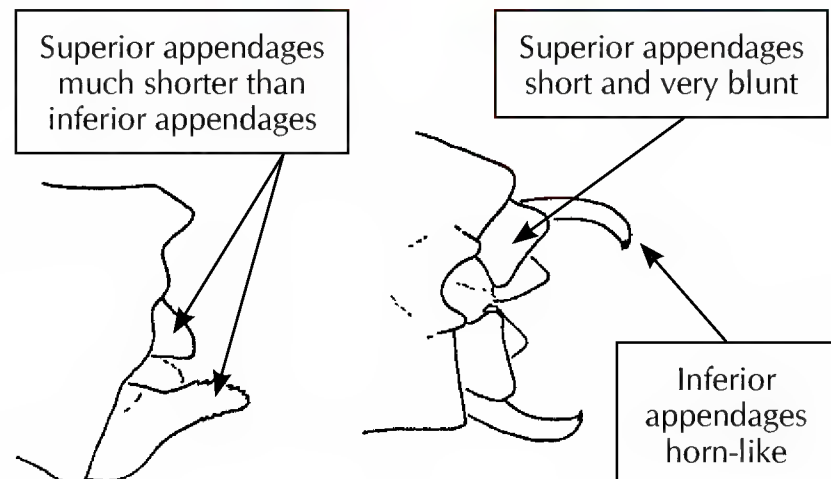


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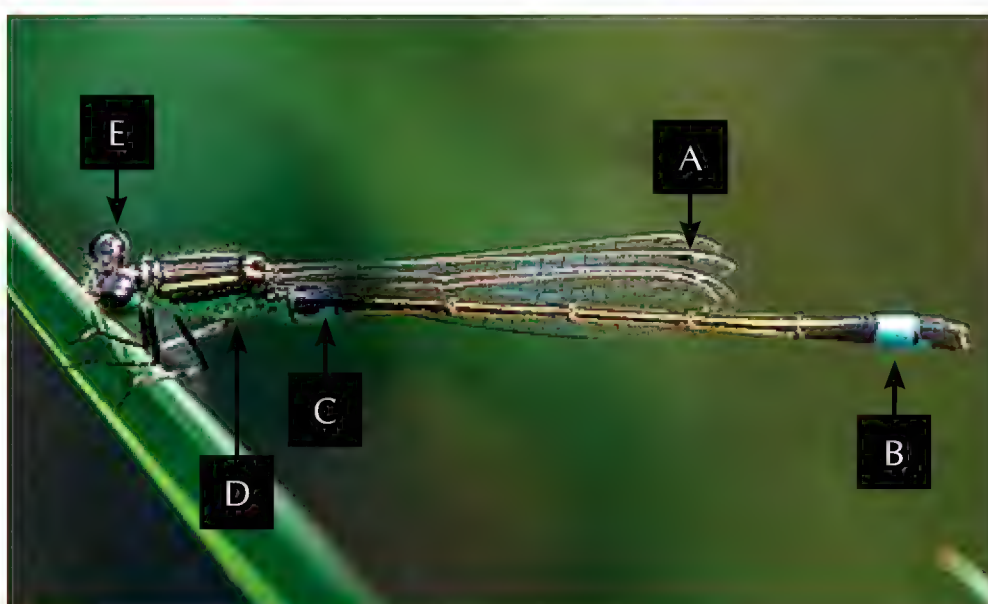
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about 2 000 m elevation. It occurs throughout tropical Africa, parts of Asia and some of the Indian Ocean Islands and prefers edges of pools, pans, dams, waterholes and still marshy reaches of rivers. It can be seen in stagnant habitats with high dung input from mammals and in habitats severely disturbed by humans. It can even tolerate slightly brackish conditions. It is conspicuous when it flits and rests among reeds, sedges and grasses in marshy areas. Mating pairs are common. On the wing from September to May with occasional overwintering adults.



Body length: 29–30 mm

Hindwing length: 14.5–15.5 mm

- Small
- Black, green and blue
- Shiny, metallic black and hairy thorax
- Pterostigmas black and blue
- Bright blue patch on side of abdomen

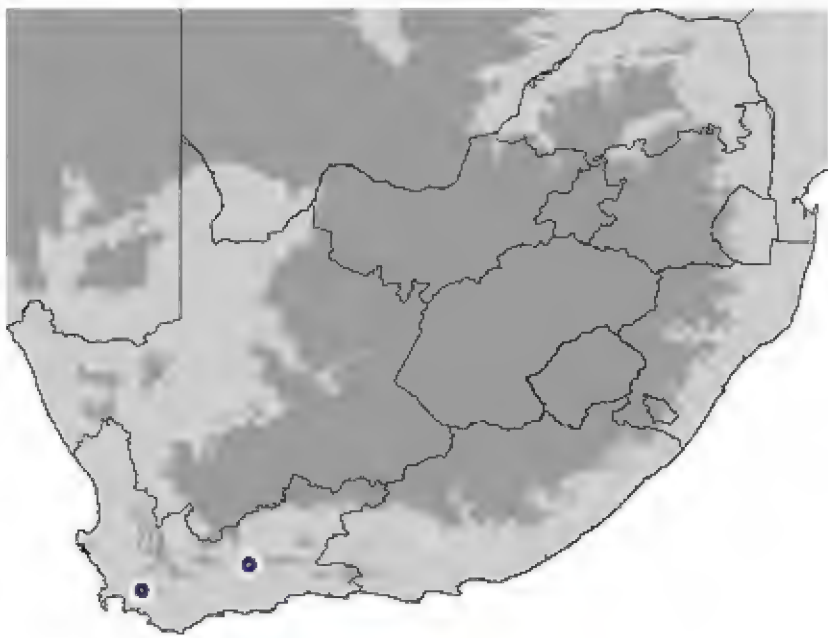
- A. Pterostigmas black on inside and blue on the outside
- B. Segment 8 bright blue
- C. Blue side patch
- D. Green sides
- E. Bright blue postocular spots

Mauve Bluet

Proischnura polychromatica (Barnard, 1937)

Appearance: The Mauve Bluet is very small, dark, deep bronze green and mauve. Face mauve and black. Labrum mauve with three black dots. Postclypeus mauve with black basal band. Frons mauve. Head dark bronze green from above, bluish mauve wedge-shaped postocular spots connected by fine mauve line. Eyes dark grey above, light grey below. Neck dark bronze green with mauve dots. Thorax dark bronze green almost blackish with broad mauve bluish mauve or purple stripes above, sides mauve to purple merging into buff below. Wings clear with fairly rounded tips. Pterostigmas dark brown. Abdomen light brown with bronze green blackish stripe along top of segments 1 to 7. Segments 8 and 9 each with shield-shaped blue markings that become purple with age. Segment 10 bronze green. Female with similar patterning, mauve replaced by light brown, only segment 9 with small dark blue oval spot.

Field notes: The Mauve Bluet is extremely rare and threatened with records from above Ceres, Seweweekspoort, and Franschhoek Pass. It occurs at pools with dense growth of grasses, sedges and reeds. These pools may be part of the river braid left behind as the mountain stream water level drops during summer. It has to be looked for very carefully among the grass stems and is usually only seen when disturbed. On the wing from November to February.

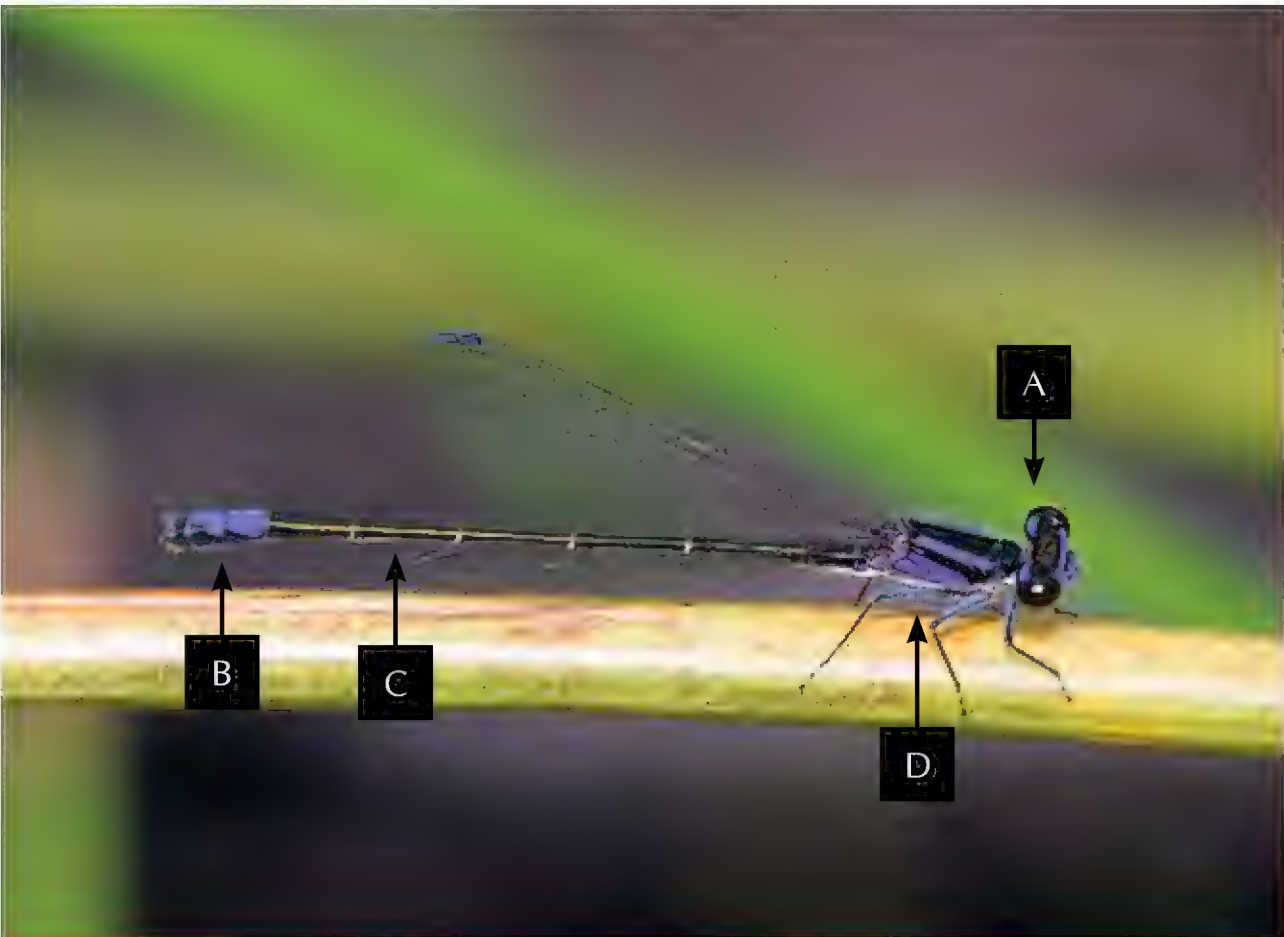
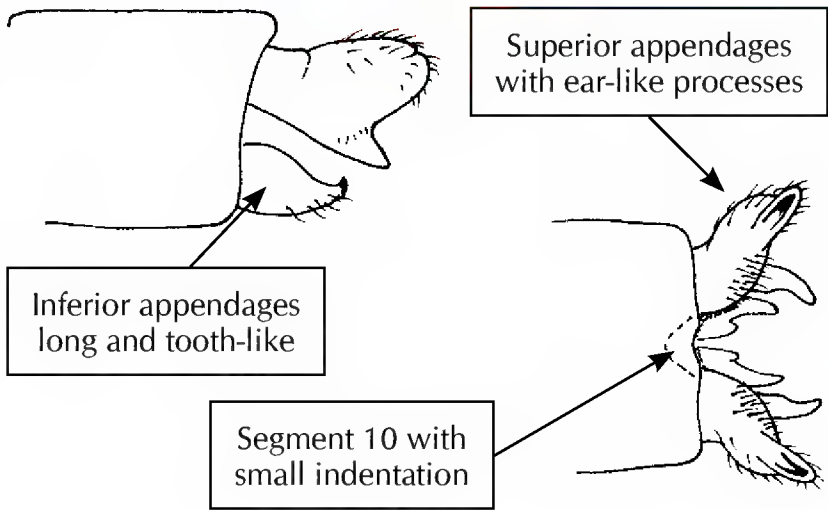


Threat

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9



- Slender
- All deep mauve and black with bronze sheen
- A. Deep mauve wedge-shaped postocular spots
- B. Deep mauve tail
- C. Distinct metallic sheen
- D. Deep mauve sides

Body length: 25 mm

Hindwing length: 12.0–12.5 mm

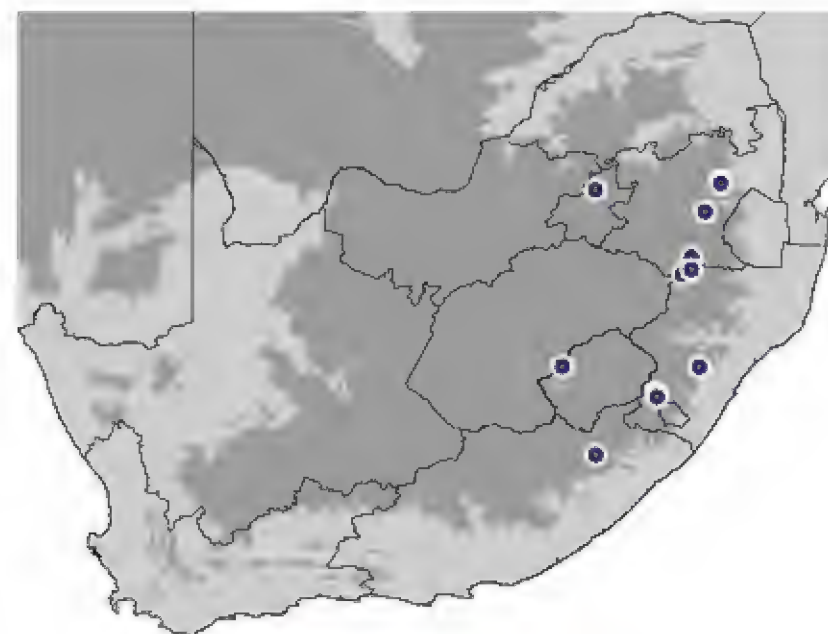


Round-winged Bluet

Proischnura rotundipennis (Ris, 1921)

Appearance: The Round-winged Bluet is very small bright blue and black. Face light blue and black. Labrum light blue with bold black triangular mark. Postclypeus black. Frons light blue. Head black with crescent-shaped light blue postocular spots from above. Eyes light blue with black cap. Neck black above with roundish blue spots on sides, light blue below. Thorax metallic black with fine light blue shoulder stripes, sides light blue. Wings clear with rounded tips, many subsidiary veins around edges. Pterostigmas conspicuous, black, rounded with fine bright blue lines on side and hind margins – these lines fade upon death. Abdomen bright blue on sides of segments 1 and 2, brownish blue on sides of segments 3 to 7, continuous metallic black stripe ending squarely at the end of segment 7 from above. Segment 8 bright blue with fine black ring. Segment 9 bright blue in first half with black half-ring of small rounded teeth at edge in second half. Segment 10 black above. Female similar in patterning, greenish when young becoming grey with age, face greenish blue to all blue, head dark grey with barely visible postocular spots from above, thorax and tip of abdomen pale grey or pale blue, abdomen dull black and grey, pterostigmas light grey with whitish borders.

Field notes: The Round-winged Bluet is a very localised endemic at elevations over 1 200 m in Gauteng, KwaZulu-Natal and Mpumalanga. Its habitat is open montane vleis, pools and

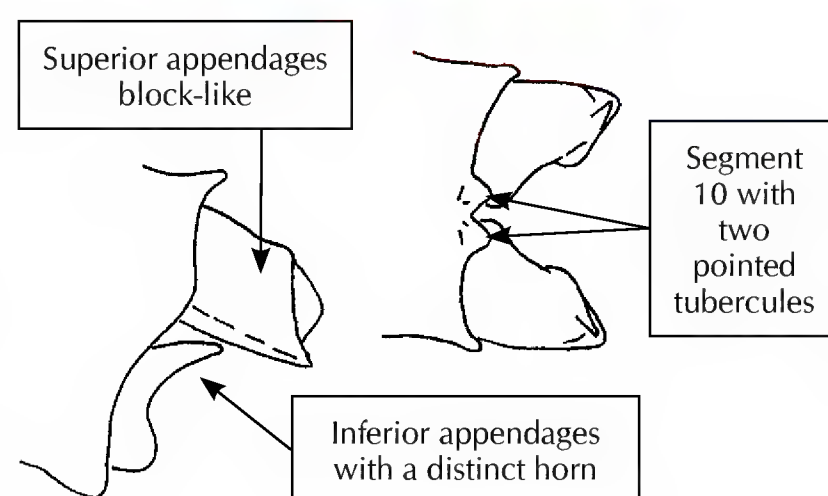


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dams with an abundance of sedges, reeds and tall grasses. It perches conspicuously high up on grass stems over water. On the wing from December to May.



- All blue and black
- Pterostigmas black and rounded, with distinct blue borders

- A. Pterostigmas rounded, black with blue margins
- B. Segment 8 blue
- C. Blue tail with black on segments 9 and 10
- D. Wings very rounded at ends
- E. Crescent-shaped light blue postocular spots

Body length: 25–27 mm

Hindwing length: 14.0–15.5 mm



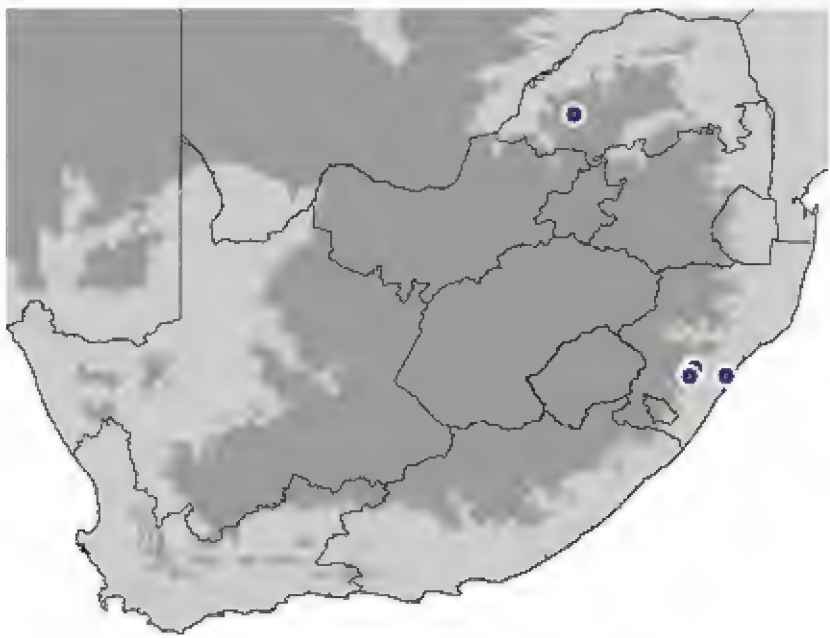
Slender Bluet

Africallagma fractum (Ris, 1921)

Appearance:The Slender Bluet is small, slender, striped blue and black. Face bright blue, greenish blue and black. Labrum bright blue with three small black basal spots. Anteclypeus blue, postclypeus black. Frons greenish blue. Head black from above with large, slightly wedge-shaped pale blue postocular spots, almost linked by fine, bright blue line. Eyes black above, greenish blue to bright blue below. Neck bright blue and black. Thorax black with bright blue shoulder stripe, sides sky blue becoming brownish with age. Wings clear. Pterostigmas roundish, light grey with fine light borders. Abdomen long and slender. Segments 1 to 7 black with slight greenish sheen above. Segments 8 and 9 bright blue. Segment 10 bright blue with black saddle. Superior appendages black. Spines on inferior appendages mostly black. Female similar to male, less slender, blue replaced by light brown, segment 8 with large dark area above, segment 9 with two-pointed dark area.

Note: the South African *Africallagma fractum* was formerly known as *A. elongatum*.

Field notes: The Slender Bluet is a highly localised species and is not always present at the same locality from one year to the next. It has been recorded between 600 and 1 200 m elevation in KwaZulu-Natal and Limpopo Province. It occurs north to Ethiopia and lives among tall grasses and herbs that grow thickly along small

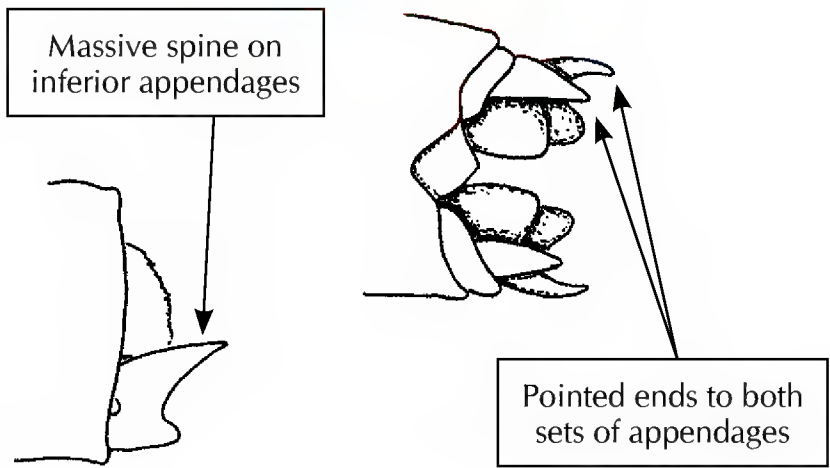


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streams and pools in bush of forest openings. It is conspicuous as it sits high on tall grass stems, gently waving its abdomen up and down and often engaging in territorial disputes. On the wing from December to May.



- All blue and black
 - Slender
 - Joined wedge-shaped postocular spots
- A. Wedge-shaped pale blue postocular spots
- B. Black ends squarely
- C. Segment 7 with a broken blue ring at end

Body length: 30 mm

Hindwing length: 16.5–17.0 mm

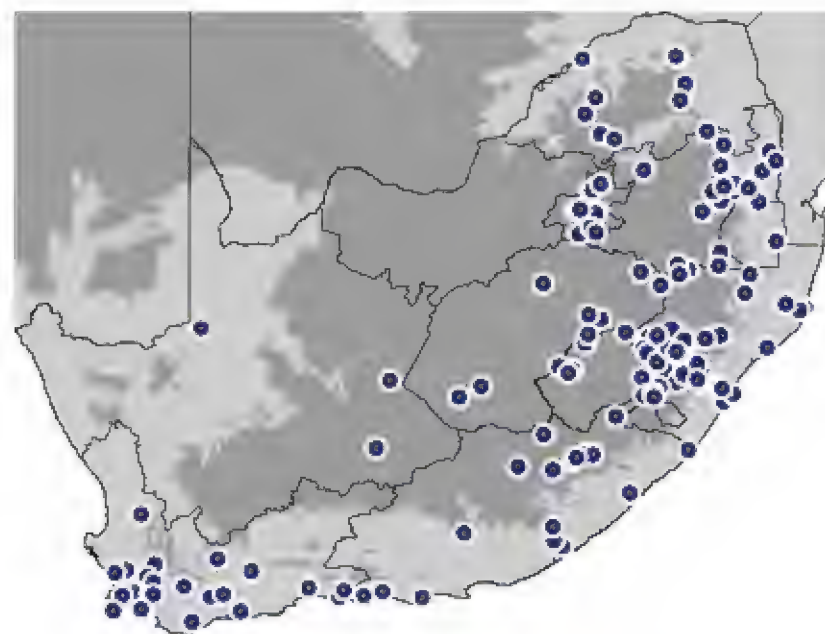


Swamp Bluet

Africallagma glaucum (Burmeister, 1839)

Appearance: The Swamp Bluet is very small to small and all sky blue and black. Face light blue and black. Labrum light blue with fine black base. Anteclypeus greyish light blue. Postclypeus black. Frons and cheeks light blue. Head with wide black transverse band from above, a blue line runs across back of head, not quite reaching eyes, line sometimes broken to form postocular spots. Eyes light blue with black cap, cap coincides with black band on top of head. Neck black with fine broken light blue margins. Thorax black with light blue stripes, sometimes the blue is very light and brownish and on occasion individuals have a completely brown stripe. Wings clear. Pterostigmas dark grey almost black with fine pale margins. Abdomen light blue with black band of variable widths running along top on each segment, tapering at end of segment 7. Segments 8 and 9 above all blue. Segment 10 blue with fine black stripe above. Superior appendages black with whitish extremities. Spine on inferior appendages mostly blue. Female with similar markings to male, blue completely replaced by light brown.

Field notes: The Swamp Bluet is common throughout South Africa from sea level to the alpine zone of the Drakensberg, although fairly scarce in the Northern Cape. It ranges north to East and West Africa and also occurs on the island of Réunion. It inhabits various types of still waters including pools, dams and quiet reaches of streams and rivers where there are swampy areas with lush, short

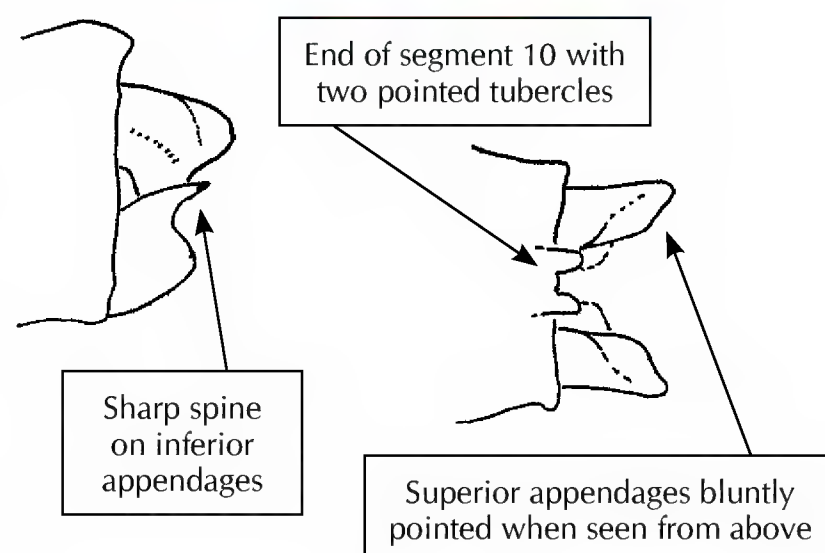


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grasses and sedges. It flies swiftly across the water, close to the surface, and frequently lands on emergent grass blades, small sticks or lily pads. It flies all year, although rare in winter.



- Very common
- All pale blue and black
- No postocular spots
- A. Very narrow black saddle on segment 10
- B. Thin blue line between eyes
- C. Black tapers on segment 7
- D. Pale blue striped thorax

Body length: 28–29 mm

Hindwing length: 15.5–16.5 mm

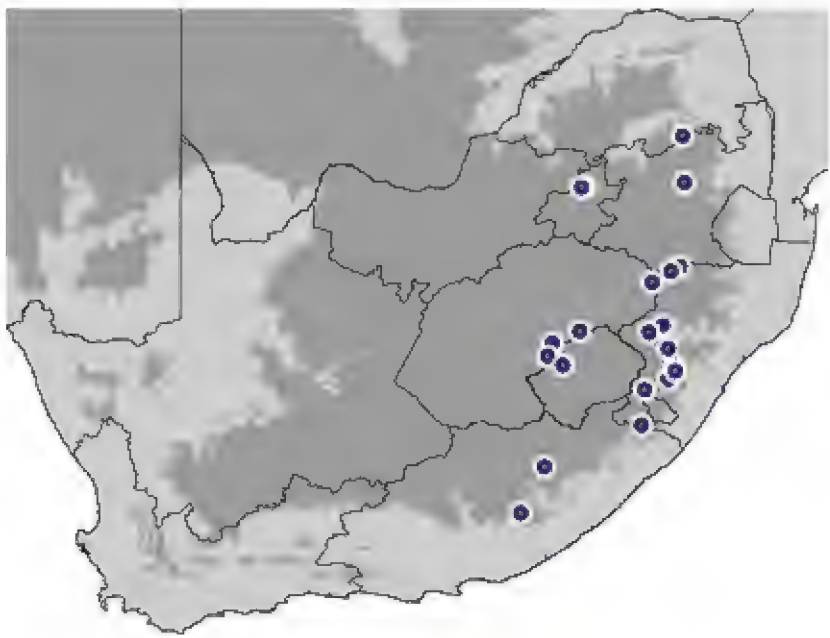


Sapphire Bluet

Africallagma sapphirinum (Pinhey, 1950)

Appearance: The Sapphire Bluet is very small, all sapphire blue and black. Face sapphire blue and black. Labrum bright blue with black base and three small black spikes, centre spike clearly visible from above. Anteclypeus light blue. Postclypeus black. Frons light blue. Head black with a blue line from above, line sometimes broken, running across head but not quite touching eyes. Eyes sapphire blue with black cap. Neck black with light blue margins and blue side spots. Thorax shiny black with light blue shoulder stripes, sides pale blue. Wings clear. Pterostigmas dark brownish grey with wide light borders. Abdomen bright sapphire blue with black markings above, markings not connected and do not form a continuous line along top of abdomen, giving abdomen black-ringed appearance. Segments 1 and 2 with joined black marking, black markings on segments 3 and 4; virtually rings with forward-pointing spikes in last third of segment. Segment 5 with black wedge shape, becoming larger on segment 6 and covering almost entire dorsal surface of segment 7. Segment 8 bright sapphire blue with a fine black ring. Segment 9 sapphire blue with spiky black ring. Segment 10 black above. Female head and thorax pattern similar, colours are bluish buff or light brown instead of bright blue, abdomen with more extensive black, especially at the tip.

Field notes: The Sapphire Bluet is endemic to South Africa, and has been recorded from the Free State, KwaZulu-Natal, Gauteng, Mpumalanga and the northern part of the Eastern Cape. It is found at elevations from 1 000 to 1 800 m. It occurs at pools and trout dams with an abundance of fringing

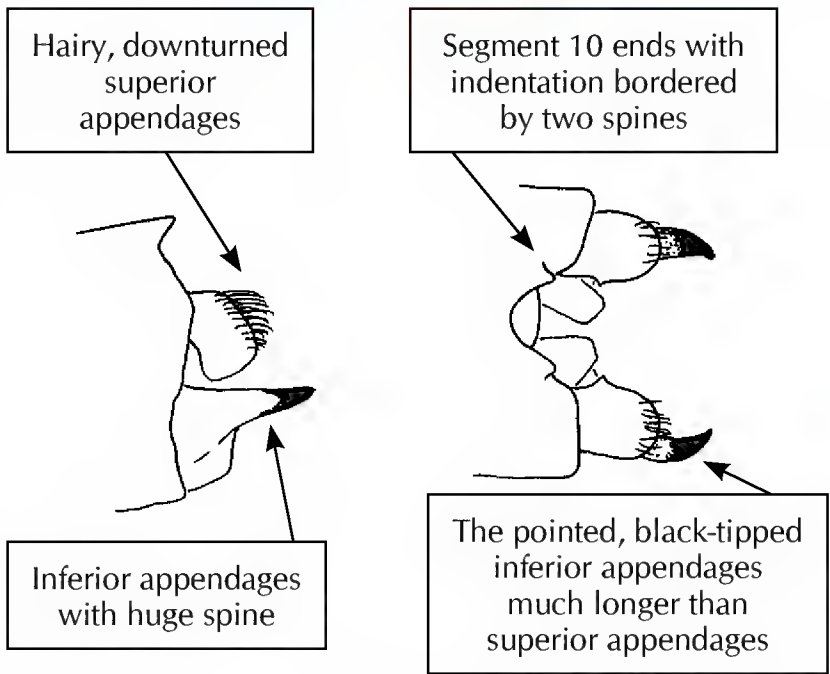


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ing tall grasses and sedges. It perches mostly on grass or sedge stems at the water's edge but will fly rapidly and close to the water when disturbed. On the wing from December to April.



- Diagnostic, striped sapphire blue and black abdomen
- A. Segments 8 and 9 sapphire blue
- B. Black ends squarely at end of segment 7
- C. Blue line across the head
- D. Sapphire blue body
- E. Black and blue alternating pattern on abdomen
- F. Black saddle on segment 10

Body length: 26–28 mm

Hindwing length: 13.5–15.0 mm

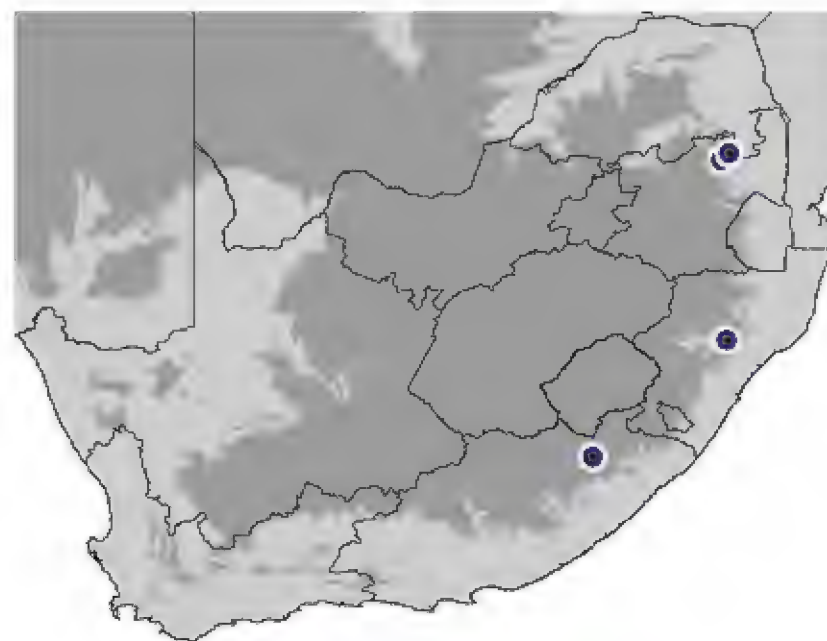


Peak Bluet

Africallagma sinuatum (Ris, 1921)

Appearance: The Peak Bluet is small, slender, light pale blue with fine black lines. Face pale blue. Labrum light blue with indistinct central blackish dot. Anteclypeus greyish blue with brownish lower margin. Postclypeus and frons greyish blue. Top of head light blue with strong black band running from eye to eye but not touching the bases of antennae, back of head greyish to brownish light blue with no black. Eyes dark brown with blackish cap. Neck pale blue with fine black dash. Thorax light blue, narrow straight black lines on either side of midline from above, narrow black lines of varying widths from sides (lines almost absent in KwaZulu-Natal individuals). Wings clear. Pterostigmas black with faint light border and smooth bowlike hind margin. Abdomen very slender and long, light blue, becoming bright blue towards tip. Segment 2 with spear-shaped black marking. Segments 3 to 7 with black lines of varying widths above, gradually increasing backwards until segment 7, which is almost entirely black. Segments 8 and 9 bright blue. Segment 10 with short horns, blue with black above. Superior appendages in shape of an eagle's head in side view. Female similar in patterning, less extensive patterning on head and thorax, reddish brown rather than greyish blue, abdomen black along top with line broken slightly towards end, stopping at segment 9.

Field notes: The Peak Bluet is highly localised in Eastern Cape, Mpumalanga and KwaZulu-Natal montane areas. Its range extends to the Democratic Republic of the Congo and Tanzania and it

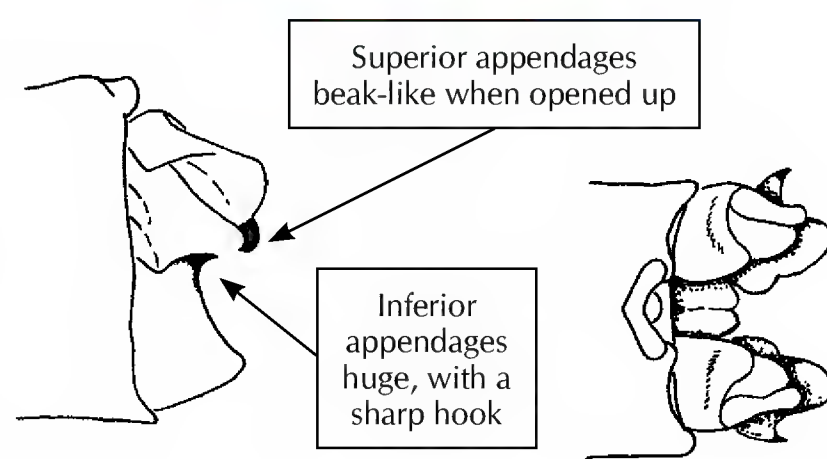


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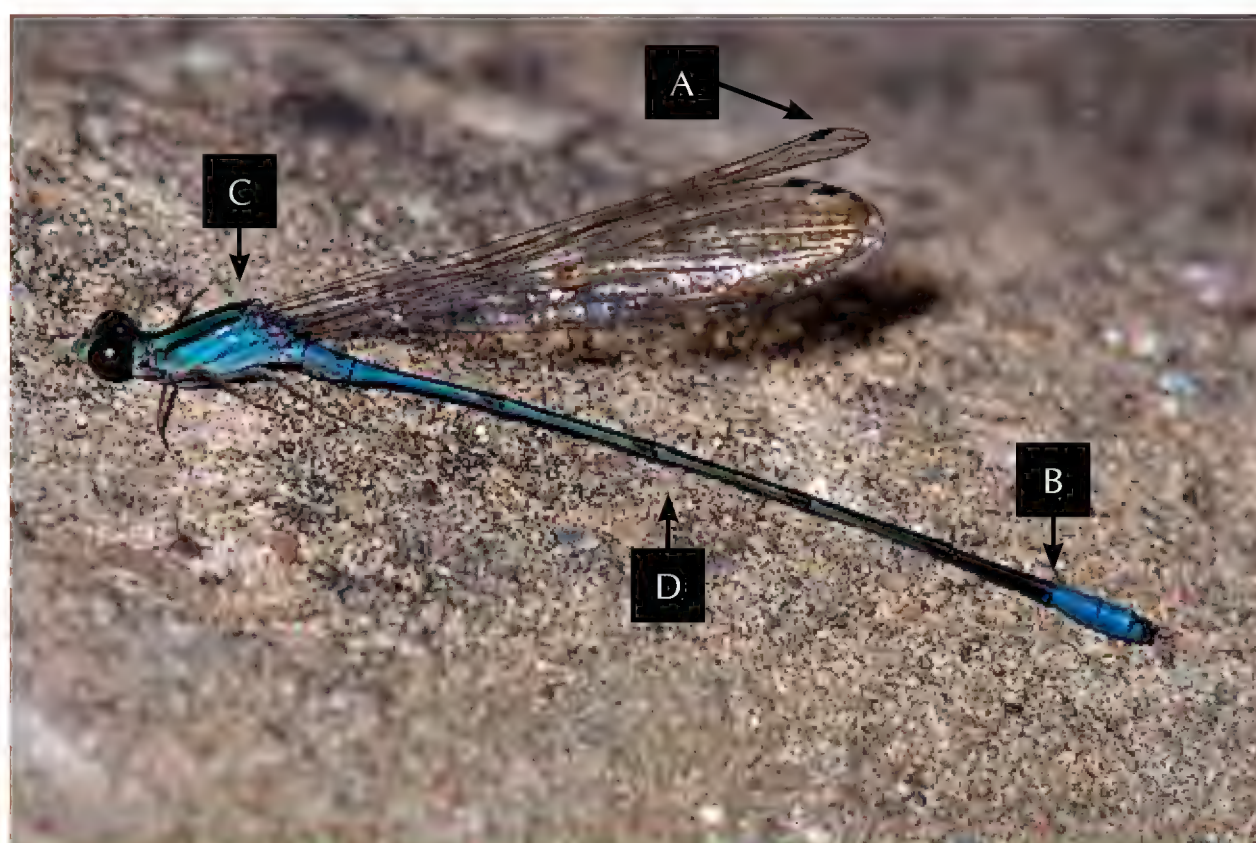
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occurs at small, clear, grass-fringed streams and seeps with pools in high rocky montane areas at elevations of 1 000 to 2 000 m. It perches on tall grass stems over running water and occasionally on boulders. On the wing from November to April.



- Extremely slender
- All blue and black
- A. Pterostigmas black
- B. Black ends squarely at end of segment 7
- C. Fine, black shoulder stripe
- D. Extremely slender abdomen

Body length: 33–34 mm

Hindwing length: 20.5 mm

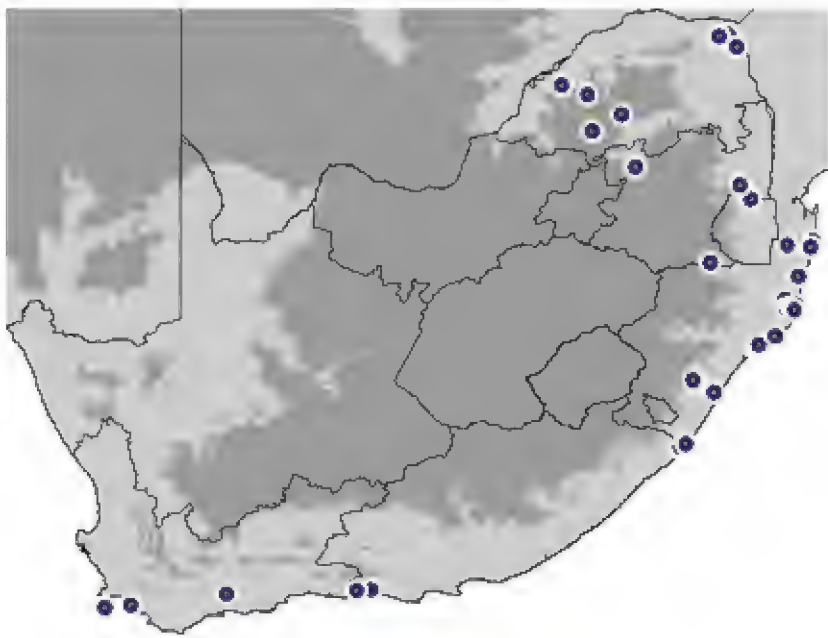


Sailing Bluet

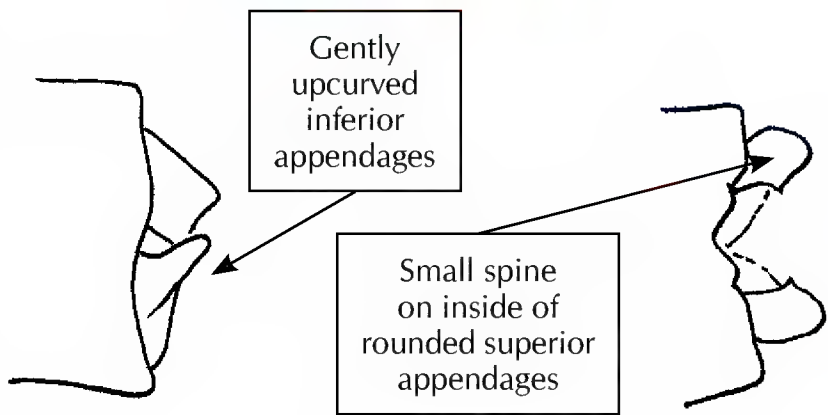
Azuragrion nigridorsum (Sélys, 1876)

Appearance: The Sailing Bluet is very small, bright blue and black. Face bright blue. Labrum bright blue with three basal black spots. Anteclypeus bright blue. Head black from above with bright blue line running across back of head but not touching eyes. Eyes bright blue with small black cap. Neck black with blue collar and fine blue hind margin. Thorax black with bright blue stripes above, sides light blue. Wings clear. Pterostigmas brownish grey with indistinct fine border. Abdomen bright blue with black line of varying width running along top, ending half way along segment 8. Segment 9 bright blue with fine black crescent at front end. Segment 10 bright blue with wide black stripe. Female with similar head thorax patterning, blue replaced by light yellowish brown, abdomen black except for fine yellowish rings from above.

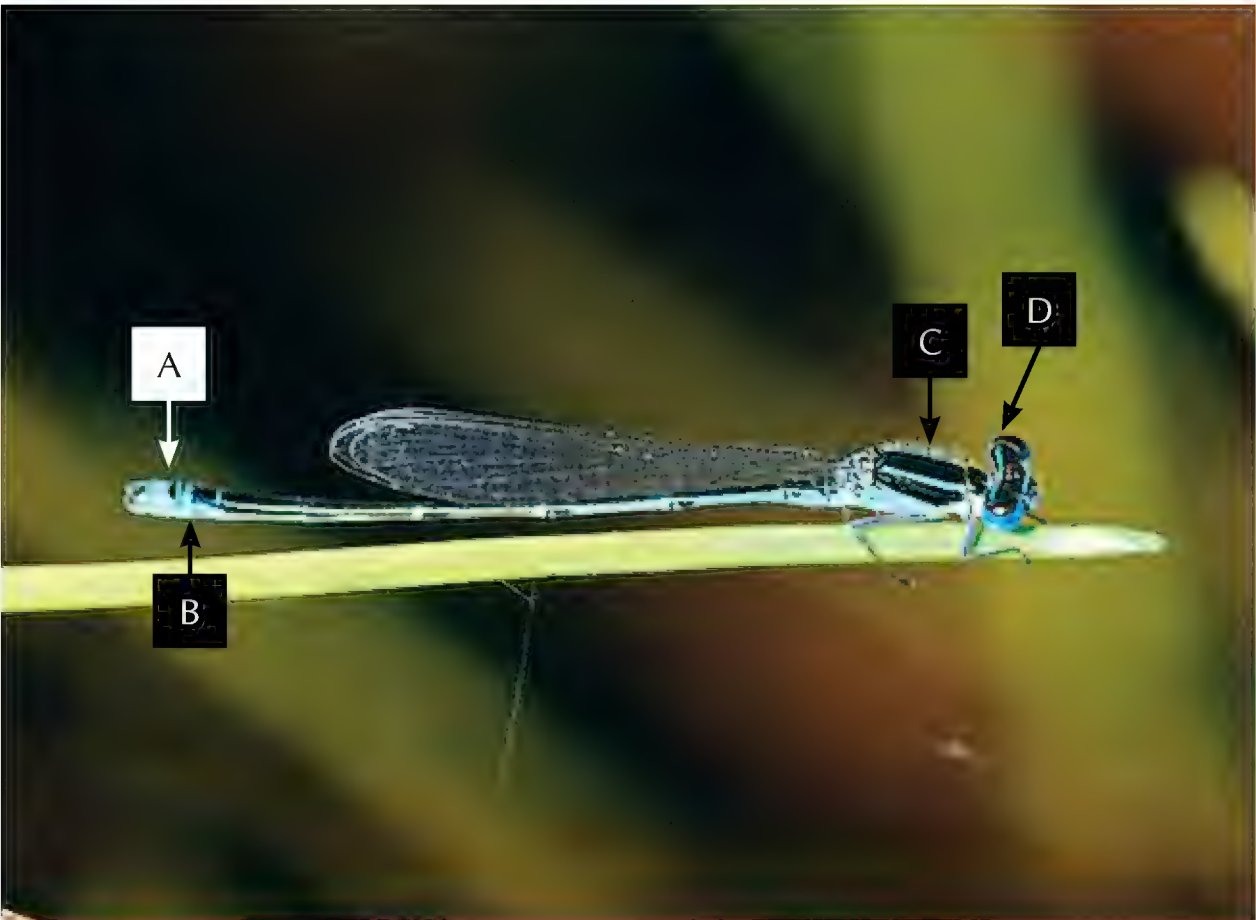
Field notes: The Sailing Bluet occurs along the southern Cape coast, and from the Eastern Cape northwards through KwaZulu-Natal, Mpumalanga and the Limpopo Province. In the Cape it has only been recorded near sea level, but in KwaZulu-Natal, while mostly common at sea level, occasional individuals have been recorded up to 1 200 m elevation. Its range extends north to Ethiopia. It occurs at pools, vleis and small lakes usually fringed with bushes or trees and with an abundance of grasses, sedges and lilies. Occasionally also occurs at grassy margins of slow river reaches. It flies rapidly across the water surface, frequently landing on emergent grass stems



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or lily pads, often far from the bank. It gets its vernacular name from the fact that it can land directly on the water surface, where it sails on the breeze. This unusual behaviour has only been seen on the Grootrivier, Nature's Valley, Western Cape and at Black Lake, Mpenjati, KwaZulu-Natal. On the wing from November to May.



- Very small
- All sapphire blue and black, with a distinctive jagged alternating pattern on abdomen
- A. Black, crescent-shaped mark on segment 9
- B. Black ends two-thirds of the way along segment 8
- C. Distinct, fine blue shoulder stripe
- D. Blue bar between eyes

Body length: 25–26 mm

Hindwing length: 15–16 mm

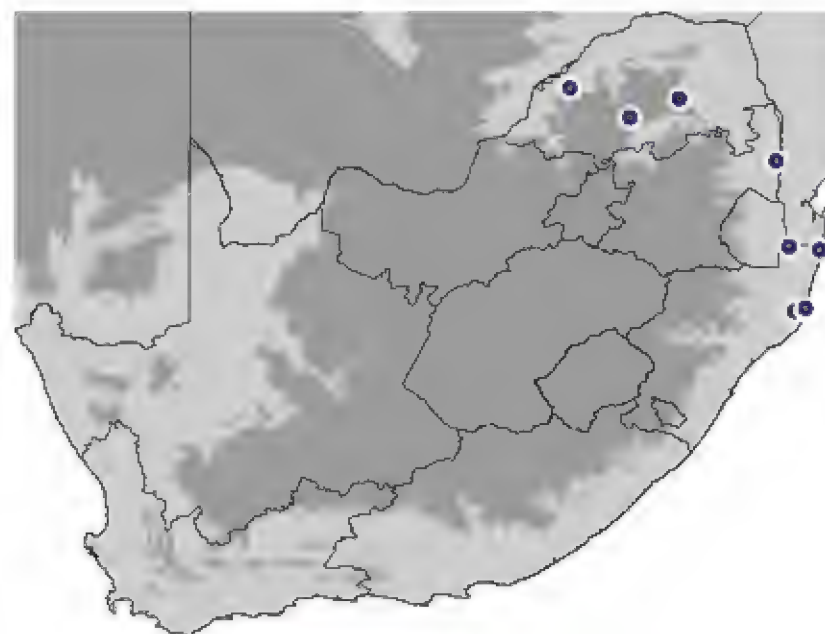


Little Wisp

Agriocnemis exilis Sélys, 1872

Appearance: The Little Wisp is minute to very small, mostly shiny black and its abdomen has a bright orange tip. Face bright green and black. Labrum shiny black with mauve metallic sheen and edged in yellowish green. Anteclypeus greenish. Postclypeus shiny black, edged in light green. Cheeks light green. Front of frons forms a transverse green band, usually divided by a fine vertical black band so that this black line forms the delicate stem of a T-shape with the transverse black of the postclypeus. Occasional individuals without this 'stem' so that the green moustache runs across undivided. Head matt black with a bronze tinge from above with two small oval, bright light blue postocular spots. Eyes black above, light green below. Neck shiny black with light green collar and hind margin. Thorax shiny black with very fine yellowish green shoulder stripes, sides light greenish yellow. Wings clear. Pterostigmas dirty brown. Legs mostly greenish yellow with fine black markings around the joint of the femur and tarsus. Abdominal segments 1 to 6 and the first two-thirds of segment 7 shiny black from above. Second two-thirds of segment 7 and all of segments 8 to 10 bright orange. Abdomen greenish yellow below, in some individuals the black stripe running along the top may reach beginning of segment 8. Appendages light orange. Female with black head and light brown moustache finely divided by a vertical black bar, thorax reddish brown with fine indistinct blackish stripes.

Field notes: The Little Wisp is localised on the coastal plain of KwaZulu-Natal and extends northwards to the Mpumalanga lowveld and Limpopo Province. Its range extends north to West Africa and Ethiopia. It also occurs on Mad-



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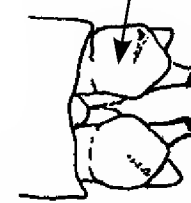
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Needle-like superior appendages in side view



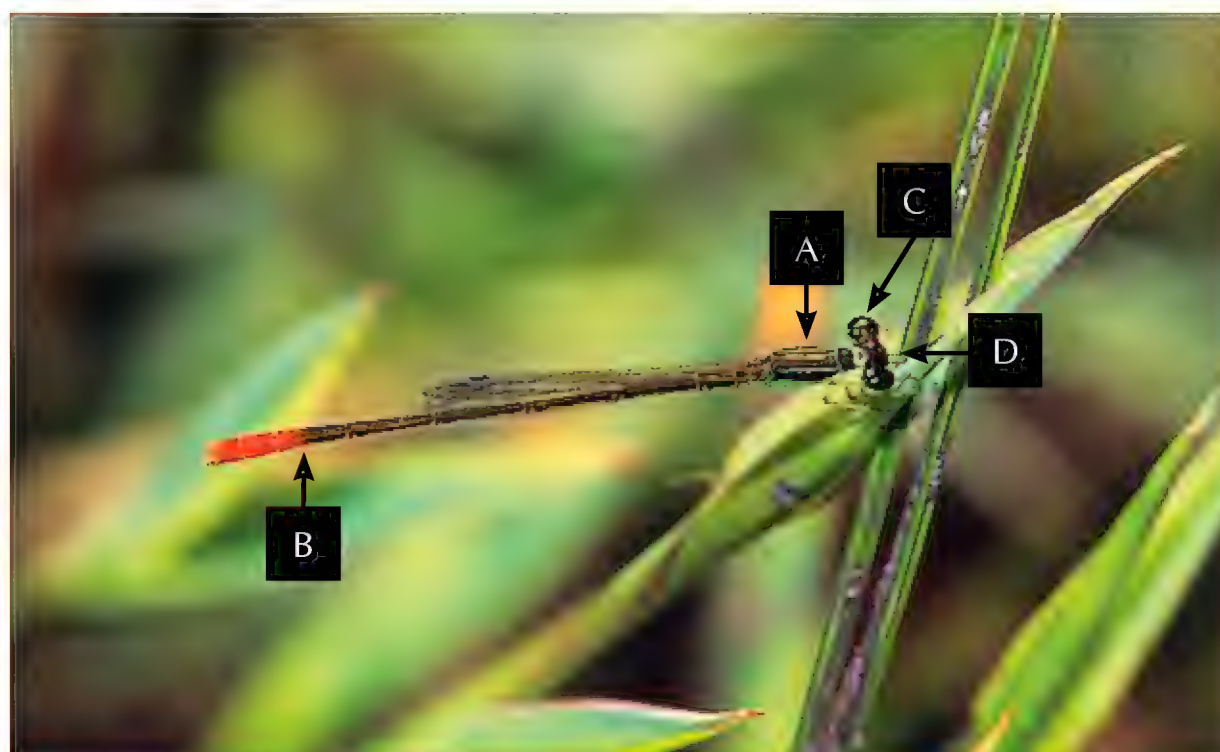
Claw-like inferior appendages in side view

Superior appendages block-like when viewed from above



Long inferior appendages

agascar and Mauritius. Its habitat is flooded margins of shallow open pools, dams and pans with a great abundance of fairly short reddish grasses, sedges and reeds. It rests with its head upwards on grass stems close to the water and cruises low down among the thick vegetation. On the wing from December to May.



- Minute to very small
- Shiny black with bright orange tail tip
- Fine, bright green shoulder stripe
- Low elevation species

- A. Fine green shoulder stripes
- B. Black ends two-thirds along segment 7
- C. Small, blue postocular spots
- D. Shiny black with a green face

Body length: 18–22 mm

Hindwing length: 8.5–10.0 mm

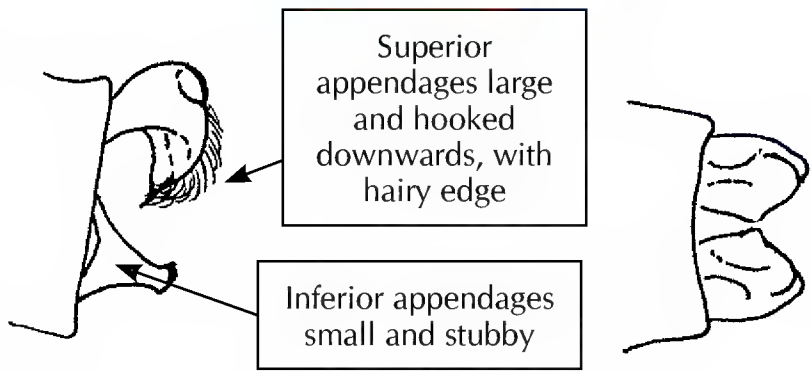
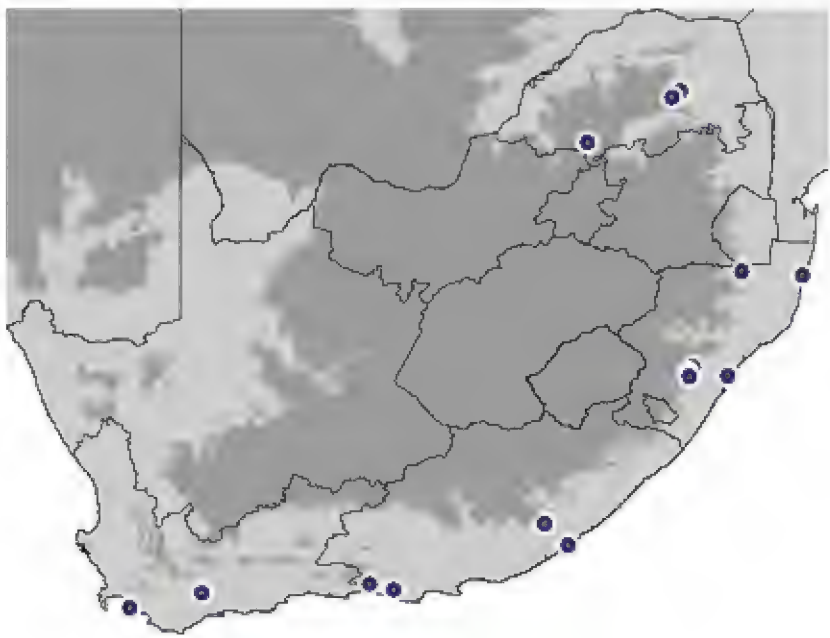


White-masked Wisp

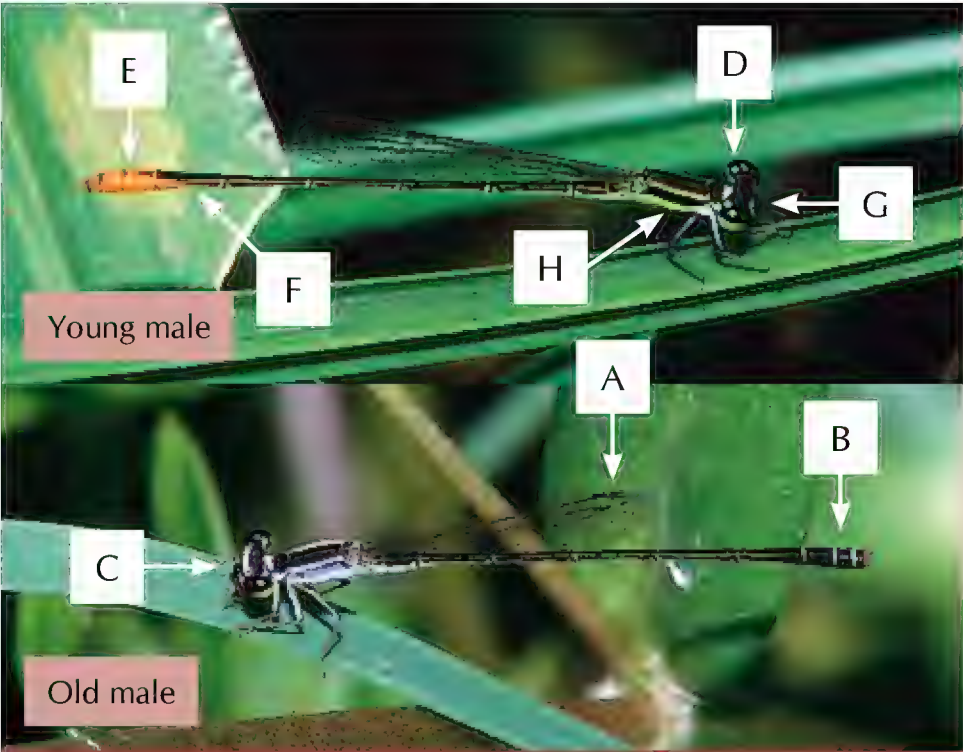
Agriocnemis falcifera Pinhey, 1959

Appearance: The White-masked Wisp is very small, with a black head and a distinct white moustache, shiny black thorax and an orange or black abdomen. Face bronze black, greenish and pruinulent white. Labrum bright shiny black with mauve sheen. Anteclypeus greenish with brown spots. Postclypeus shiny black with slight bluish mauve sheen. Cheeks greenish blue. Frons forms a distinct pruinulent white moustache in front. Head matt black with a bronze sheen from above. Postocular spots light green or greenish blue, elongated towards the centre of the head, may become pruinulent in old individuals. Eyes black above, light green below. Neck shiny black with light green collar and margin. Thorax shiny black with fine light green stripes, lower sides light green, becomes pruinulent in old individuals with stripes turning white. Wings clear. Pterostigmas with characteristically different colours in fore- and hindwing: light dirty brown in forewing, blackish with pale borders in hindwing. Abdomen above orange with indistinct black line running the length to the end of segment 7, greenish below. Segments 8 to 10 bright orange. Appendages orange. In some old individuals abdomen becomes totally black leaving only fine green or orange rings, especially between segments 7 to 10. Female with various colour forms ranging from bright brick red with black markings above, through to green and greenish brown, some individuals mostly black with some green below and fine orange rings on tip of abdomen, overall becoming very dark and highly pruinulent with age, pterostigmas light brown in both the fore- and hindwings.

Field notes: The White-masked Wisp is a localised South African endemic occurring at low eleva-



tions along the coastal rim from the Western Cape through to the Eastern Cape and northern KwaZulu-Natal. It also occurs in the Limpopo Province but at higher elevations between 1 000 and 1 300 m. Its preferred habitat is swampy margins of pools and dams that have dense stands of grasses, sedges and reeds, occasionally occurring in still reaches of rivers with an abundance of vegetation. It perches on grass or reed stems within the dense clumps of vegetation. The various colour forms of both the male and female may be seen together in the same habitat. On the wing from December to May.



- Very small
- Pterostigmas in fore- and hindwings coloured differently
- White moustache
- Elongated postocular spots
- A. Pterostigmas light brown in forewing and blackish in hindwing
- B. Tail tip black with light rings
- C. Face and thorax heavily pale pruinulent
- D. Postocular spots light green or greenish blue, elongated towards centre of head
- E. Orange tail tip
- F. Black ends on segment 8
- G. Pruinent white moustache
- H. Strong green shoulder stripe

Body length: 24–25 mm

Hindwing length: 11–12 mm

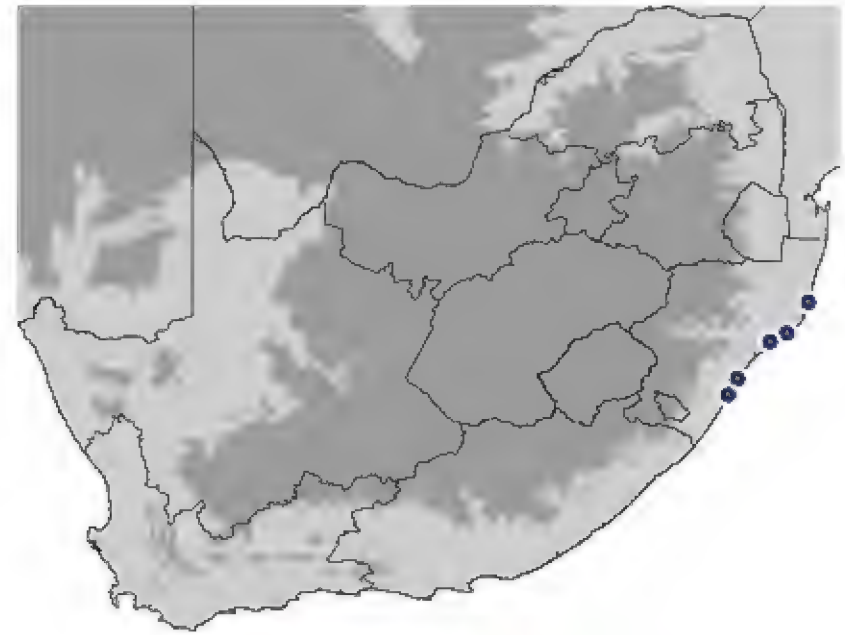


Gracious Wisp

Agriocnemis gratiosa Gerstäcker, 1891

Appearance: The Gracious Wisp is very small and mostly black with an orange abdomen tip. Face mostly black with light green moustache. Labrum highly metallic bluish purple with fine light green edge. Cheeks lime green. Anteclypeus greenish brown. Lower part of frons forms lime green moustache with wide black central stripe forming the stem of a 'T' with the shiny black postclypeus forming a cross bar. Postclypeus edged in lime green. Head dull black with a bluish green sheen and metallic bronze patches from above, back of head lime green. Postocular spots almost round, sharp-edged and bright bluish green. Eyes black above, lime green below. Neck black with wide green collar in front, fine lime green hind margin. Thorax shiny black with bright bluish green shoulder stripes, lower half lime green becoming buff below. Wings clear. Pterostigmas dark grey with indistinct fine pale borders. Segments 1 to 7 with metallic black band above, band peters out on segment 8. Sides of segments 1 and 2 and first part of segment 3 lime green, sides of rest of segment 3 to first half of segment 7 buff. Sides and top of last half of segment 7, segment 8 and all of segments 9 and 10 bright orange. Appendages dull orange with black tips. Female head mostly velvety dark greenish brown, with reddish brown stripe on top of thorax, sides of thorax bright lime green, labrum and postclypeus are shiny dark brown.

Field notes: The Gracious Wisp is highly localised in South Africa, only known from coastal northern KwaZulu-Natal. It occurs north to cen-

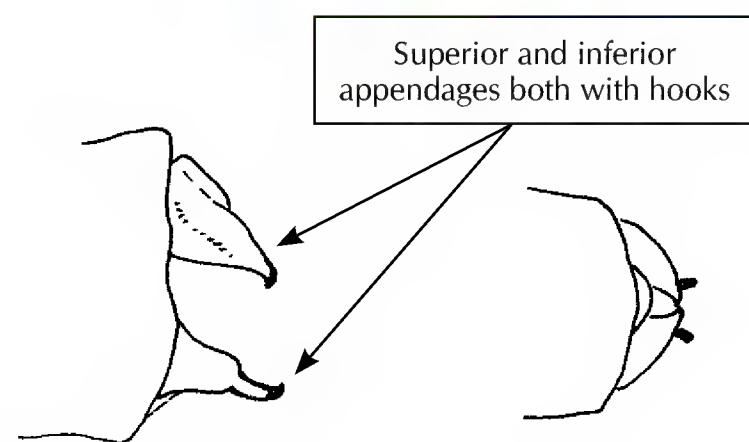


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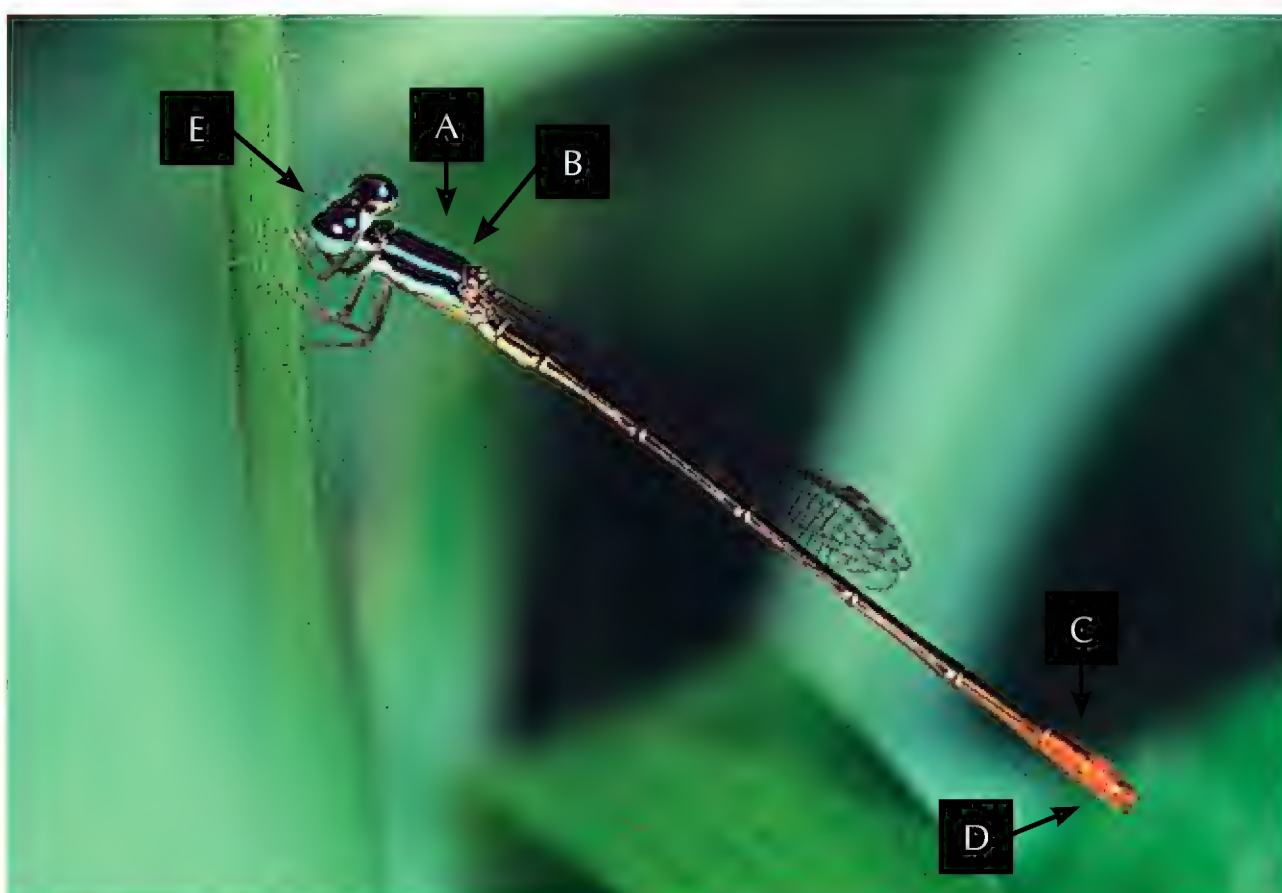
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tral Africa and also on Madagascar. It inhabits pools in coastal swamp or dune forest with canopy openings with tall grasses, ferns and herbs. It cruises between sunflecks in thickly vegetated areas close to pools and rests with its abdomen in an oblique downward position. On the wing from December to March.



- Very small
- Metallic black head with circular postocular spots
- A. Shiny thorax
- B. Strong bluish green shoulder stripe
- C. Black ends at end of segment 8
- D. Orange tail tip
- E. Circular, bright bluish green postocular spots

Body length: 25 mm

Hindwing length: 11.5–12.0 mm

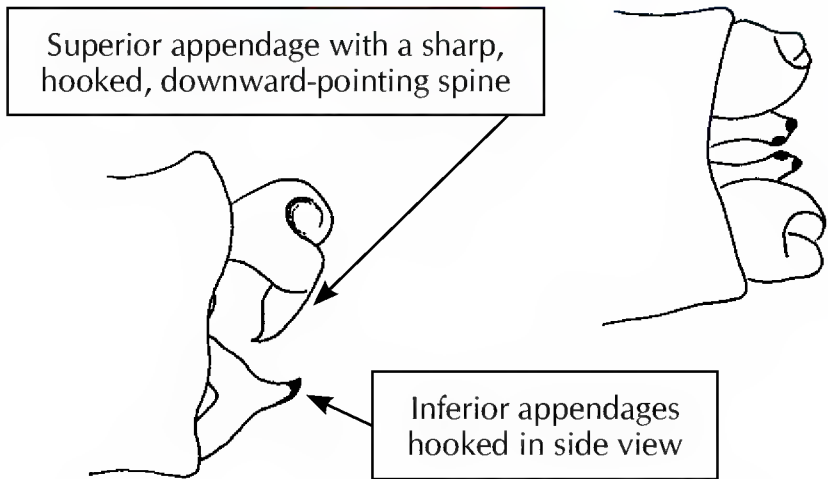
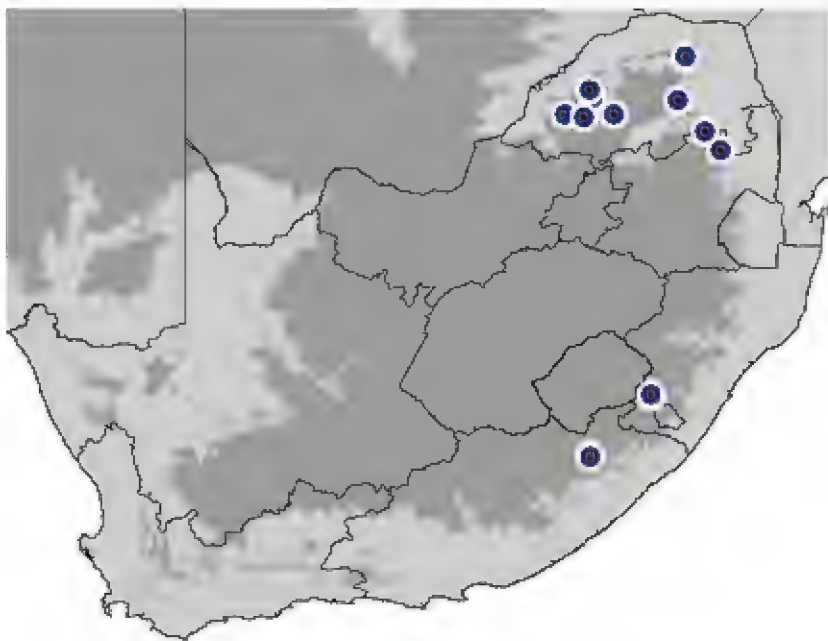


Pinhey's Wisp

Agriocnemis pinheyi Balinsky, 1963

Appearance: Pinhey's Wisp is minute with a black head and small, oval postocular spots, a shiny black thorax with a fine light green stripe, and a black abdomen with a bright orange tip. Face mostly black with unbroken lime green moustache. Labrum shiny black with lime green border, not metallic. Anteclypeus light green. Postclypeus shiny black, not metallic. Cheeks lime green. Lower part of frons (the moustache) unbroken from eye to eye and lime green. Head velvety black above with bronze sheen. Postocular spots small, oval, sharp-edged, bright bluish green. Eyes black above, light green below. Neck velvety black with very fine, yellowish green margins. Thorax velvety to shiny black with very fine yellowish green shoulder stripes, lower sides light green. Wings clear. Pterostigmas dark greyish brown. Abdomen shiny black above with the black petering out on segment 8 and finally on segment 9. Sides of segments 1 to 6 lime green. Beginning of segment 7 lime green on the side, becoming bright orange towards back. Segment 8 bright orange. Most of segment 9 and entire segment 10 bright orange. Appendages orange with black tips. Female of various colour forms, ranging from blackish red with black band on top of head and black thorax through to brown above and green below.

Field notes: Pinhey's Wisp occurs mostly at elevations between 1 200 and 1 600 m in KwaZulu-Natal, Eastern Cape, Mpumalanga and Limpopo Province. It also occurs in Mozambique, Zambia and Zimbabwe. Its preferred habitat is around



shallow pools and dams as well as in marshes and still reaches of rivers where there is an abundance of grasses, sedges and some reeds. It sits low down in the dense vegetation, often close to the water surface, with its head upwards and abdomen slanting downwards. On the wing from September to March.

- Minute
- Small, oval postocular spots
- High elevation species
- A. Orange tail tip
- B. Black peters out on segment 8
- C. Pterostigmas greyish brown
- D. Shiny thorax
- E. Small, bluish green, oval postocular spots
- F. Fine, bright green shoulder stripe

Body length: 19.5–20.0 mm

Hindwing length: 9.5–10.0 mm

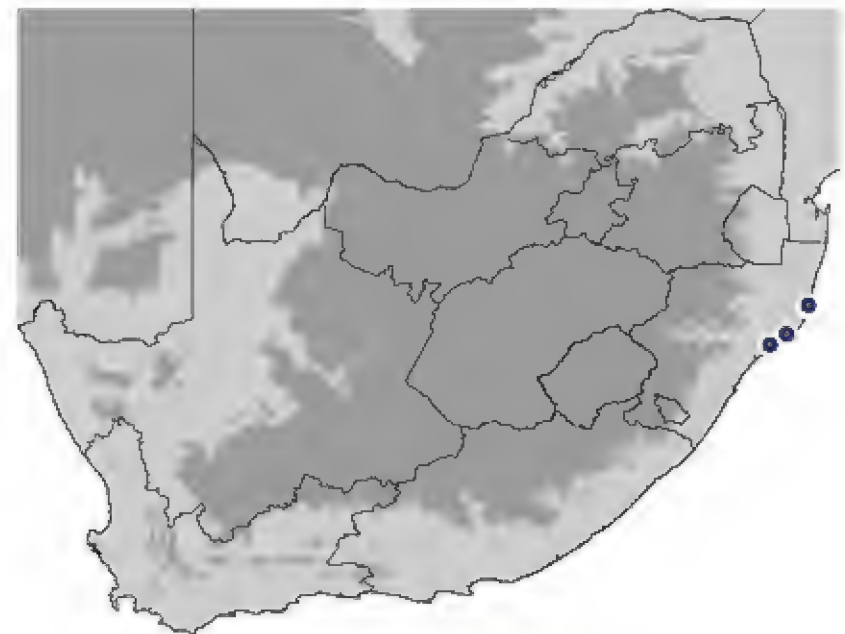


Orange Wisp

Agriocnemis ruberrima Balinsky, 1961

Appearance: The Orange Wisp is minute with a dark thorax and orange abdomen. Face mostly black with finely divided lime green moustache. Labrum glossy black with slight metallic sheen, edged in lime green. Anteclypeus light green and light brown. Postclypeus glossy black with slight metallic bluish green sheen. Lower part of frons forms a lime green moustache, finely divided by black vertical stripe. Head velvety black above with bronze sheen. Postocular spots small, oval, sharp-edged and bright bluish green. Eyes black above, bright green below. Neck velvety black with bluish green markings and fine yellowish hind margin. Thorax shiny, velvety black with fine green shoulder stripes. Wings clear. Pterostigmas dark muddy brown, slightly lighter at edges, with no distinct border. Segments 1 and 2 shiny black above, lime green below. First quarter of segment 3 black above, lime green below, orange for remainder of the segment. Segments 4 to 10 orange. Appendages orange with black tips. Female reddish brown with dark brown face, head blackish above, thorax dark brown above, abdomen dark brown above and buff below or all dull orange.

Field notes: The Orange Wisp has two forms of which *Agriocnemis ruberrima ruberrima* (ruberrima form) occurs only in coastal northern KwaZulu-Natal. The second form (*Agriocnemis ruberrima albifrons*, or albifrons form) occurs in the Okavango swamps of Botswana. It inhabits marshes, swamps and large, shallow pans

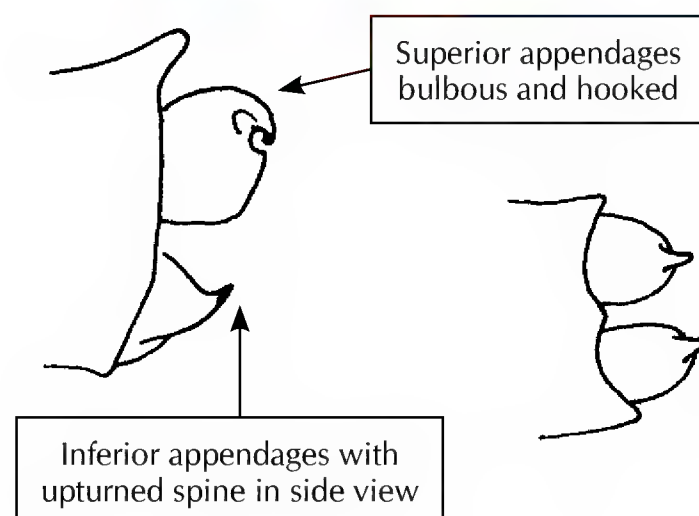


Threat

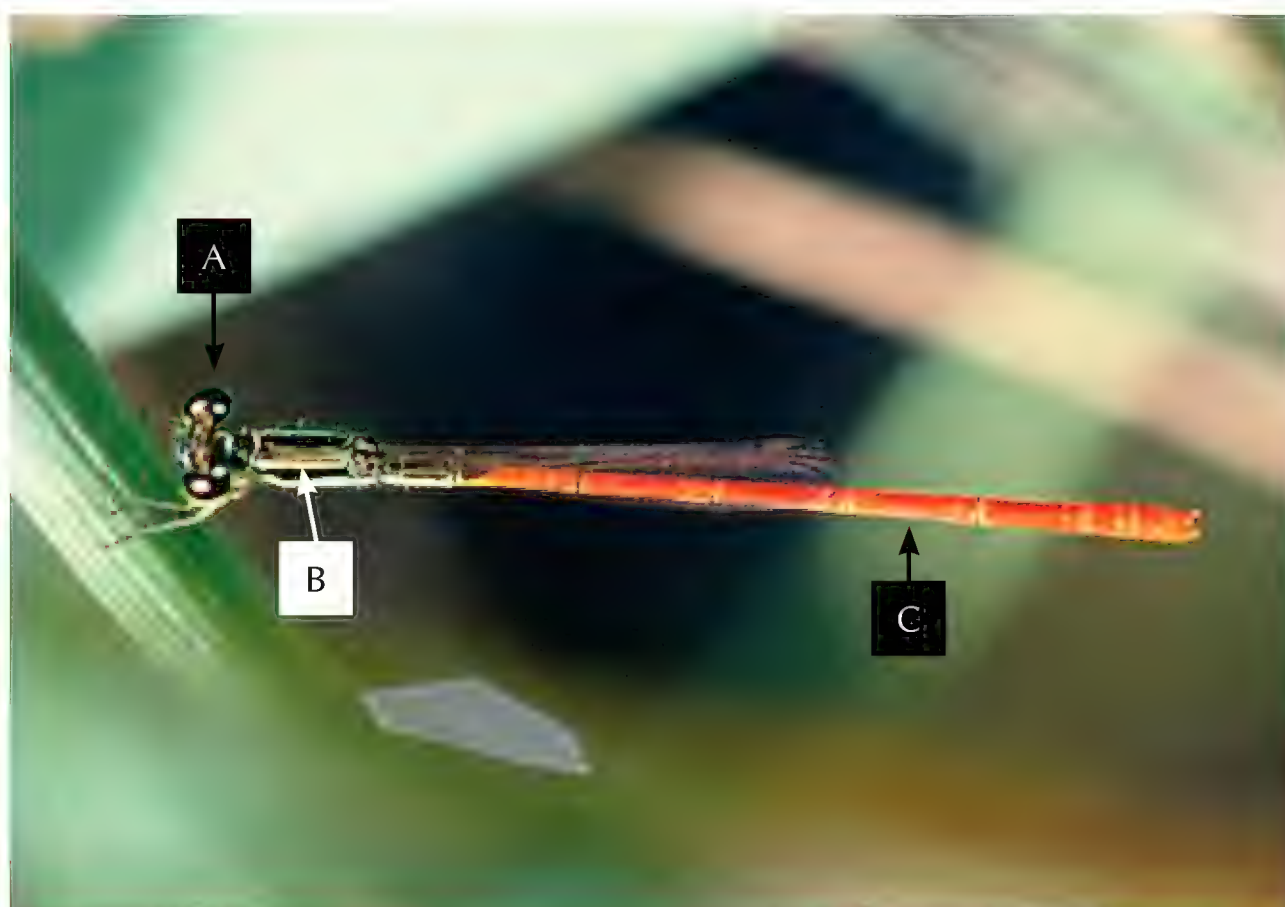
LC

DBI

8



with an abundance of tall reddish grass stems and reeds. It rests low down among the vegetation close to the water where it is camouflaged among reddish stems. On the wing from November to May.



- Minute
- Abdomen all orange
- Coastal lowlands

- A. Postocular spots small, oval and bright bluish green
- B. Fine, lime green shoulder stripe
- C. Abdomen almost all orange

Body length: 20 mm

Hindwing length: 9.5–10.0 mm

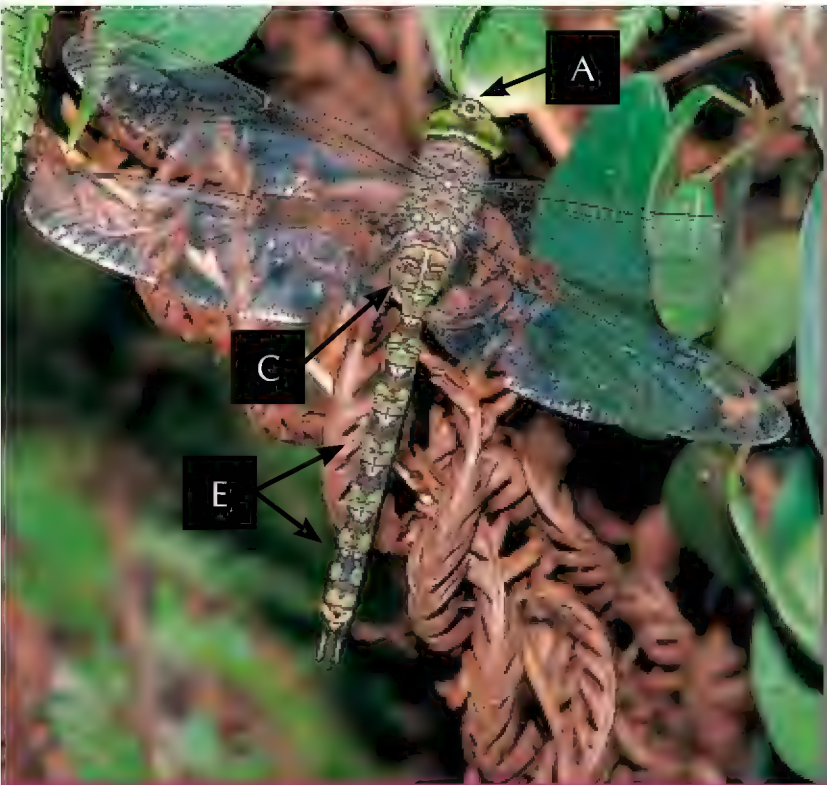
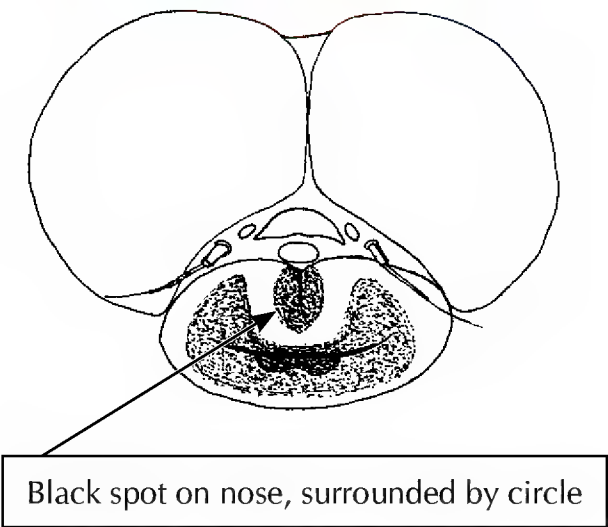
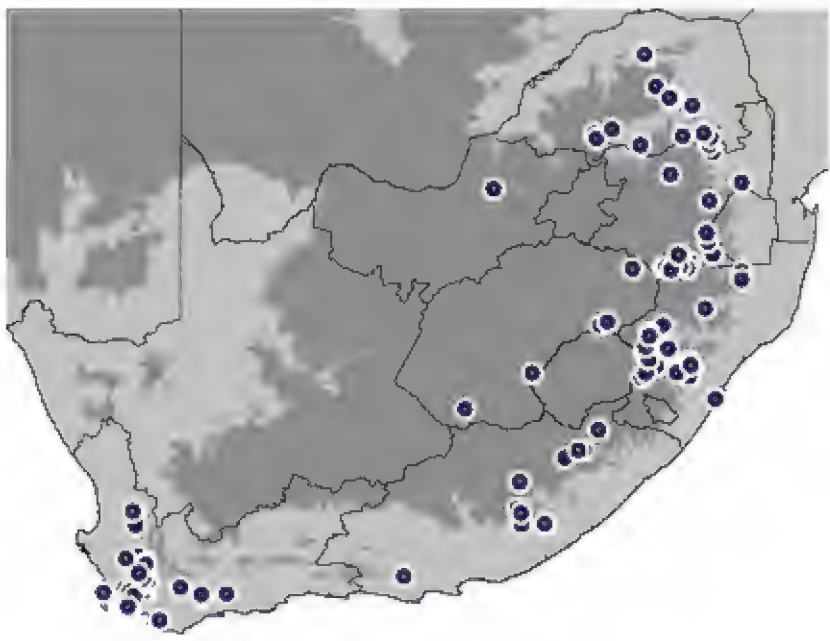


Stream Hawker

Pinheyschna subpupillata (McLachlan, 1896)

Appearance: The Stream Hawker is large, striped green and brown, and spotted. Face deep yellow to greenish yellow. Frons distinctive above: central black spot surrounded by yellow ring, again surrounded by a black ring. Head black with large central greenish yellow spot above. Eyes bright green tend to be olive above. Thorax dull dark brown, sides with two large diagonal greenish yellow lines. Wings slightly smoky with brown veins and some yellow crossveins. Pterostigmas of medium length (3.5 mm), reddish brown. Membranule (inside area of hindwing) mostly white with grey patch on outer hind quarter. Abdomen with regular pattern of alternate mosaic of green and brown patches, no blue saddle. Underside of segment 2 with pair of backward-pointing hornlike lobes, can even be seen in flight. Female similar, also with pattern on nose, stouter, more extensively brown.

Field notes: The Stream Hawker is common throughout most of the hilly and montane areas of South Africa up to 2 000 m elevation, although rarely seen in the Karoo, and is also observed in Zimbabwe. It occurs along swift streams and rivers in wooded or forested areas, hawking rapidly up and down over flowing water, resting on bushes along the edge. It may fly away from the water and is sometimes seen in gardens, especially in the Western Cape. On the wing from October to April; common only in early summer (November) in the Western Cape.



Body length: 58–60 mm



- Large and all mottled green and brown
 - No blue saddle
 - Black spot surrounded by yellow circle on nose
- A. Black spot on nose, surrounded by yellow circle
B. Two wide, yellow lines
C. No blue saddle
D. Large projection on segment 2
E. All green and brown abdomen, with undulating brown rings

Hindwing length: 40–41 mm



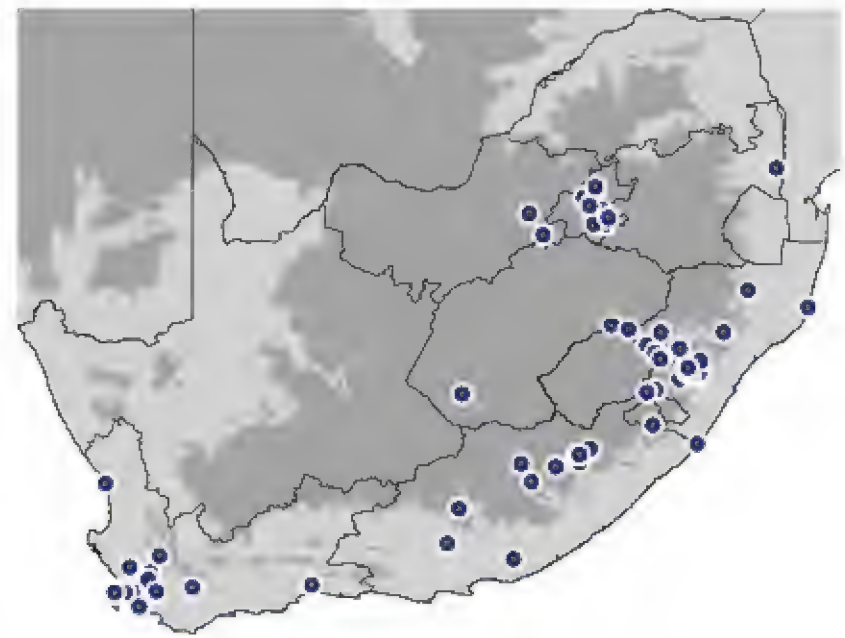


Friendly Hawker

Zosteraeschna minuscula (McLachlan, 1896)

Appearance: The Friendly Hawker is large, brown, striped and spotted with greenish yellow and light blue, and bears a distinct bright blue saddle at the base of the abdomen. Face yellowish green. Frons yellowish green above with distinct black anchor-shaped marking. Eyes yellowish with dorsal grey patch. Thorax dark brown with bright greenish yellow stripes, two narrow parallel yellow stripes on front above continue backwards as two series of spots between wings, sides with two diagonal broad yellowish green stripes. Wings smoky, costa (main leading veins of the wings) distinctly yellow, rest of veins dark brown. Pterostigmas of medium length (3.8–4.0 mm), dark brown. Membranule white in anterior half, black in posterior half. Abdomen mostly dark brown with pairs of yellowish green spots dorsally, double light blue spots on side. Segments 1 and 2 with yellow patch running along their sides into blue side patch on segment 3. Segment 2 with short longitudinal yellow stripe leading to conspicuous bright blue patch from above. Female greener than male's yellowish green, more reddish than male's dark brown, wings smokier and sometimes dark brown in young females, abdomen without blue and with fewer spots on first few segments.

Field notes: The Friendly Hawker occurs across much of South Africa, although localised and only relatively common in the mountains of the Eastern Cape and KwaZulu-Natal. There are some records from Namibia. It occurs at small open pools with an abundance of fringing reeds. Sometimes it occurs in marshes and around

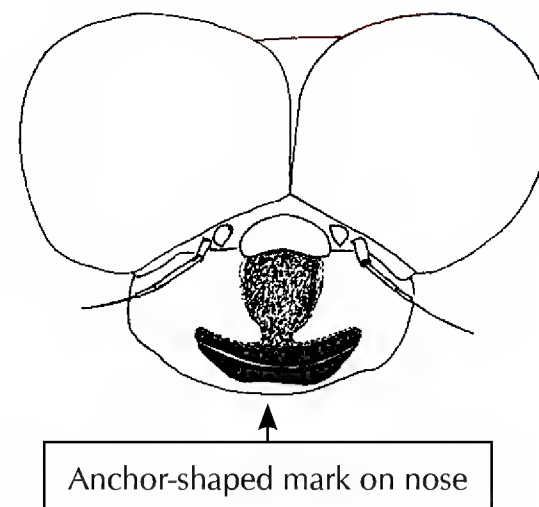


Threat

LC

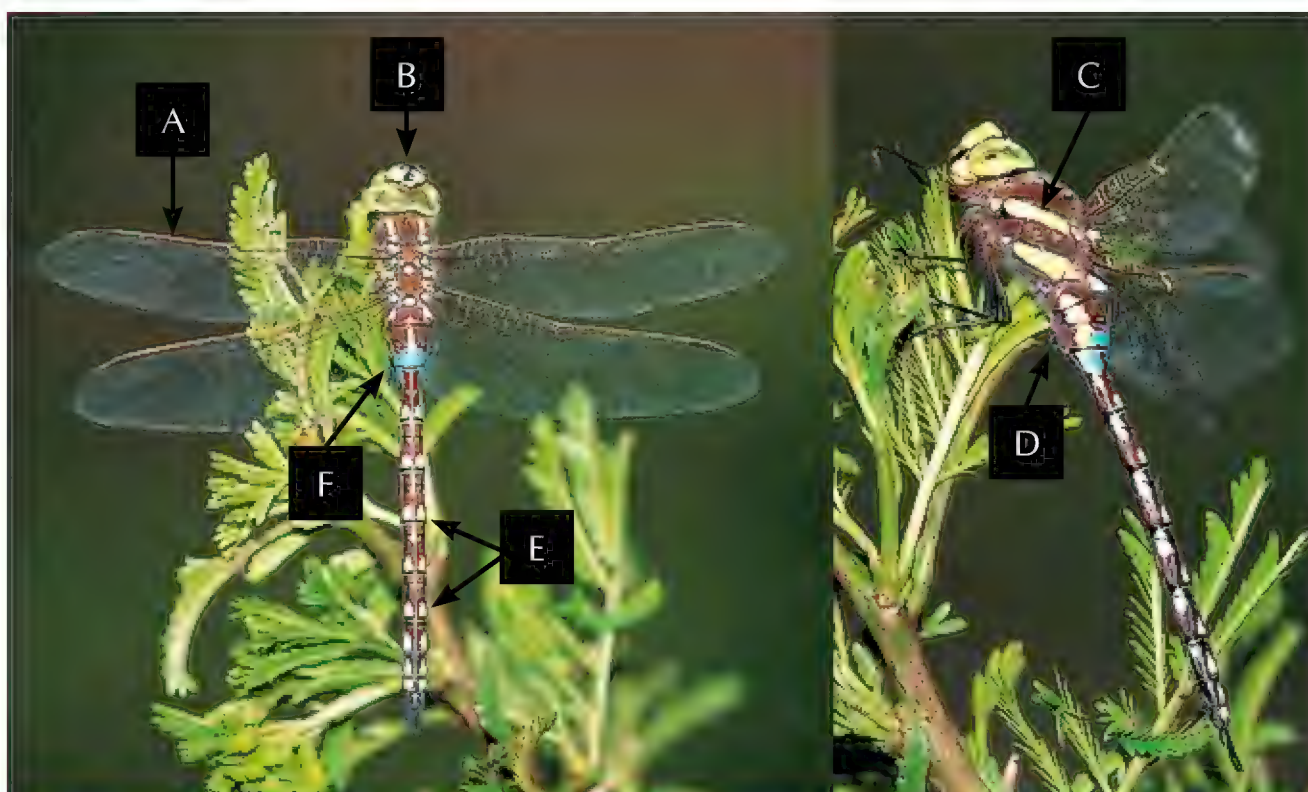
DBI

5



Anchor-shaped mark on nose

pools besides streams running through grassland. Mostly a montane (up to 2 000 m elevation) species but occasionally occurs at sea level. It hawks slowly at the margins of pools, often approaching closely when its colour pattern can easily be seen. On the wing from November to May, most common in December.



- A. Yellow leading vein
- B. Anchor-shaped mark on nose
- C. Wide yellow stripes
- D. Very small projections
- E. Pairs of greenish hoof marks
- F. Distinct blue saddle

Body length: 54–55 mm

Hindwing length: 37–38 mm

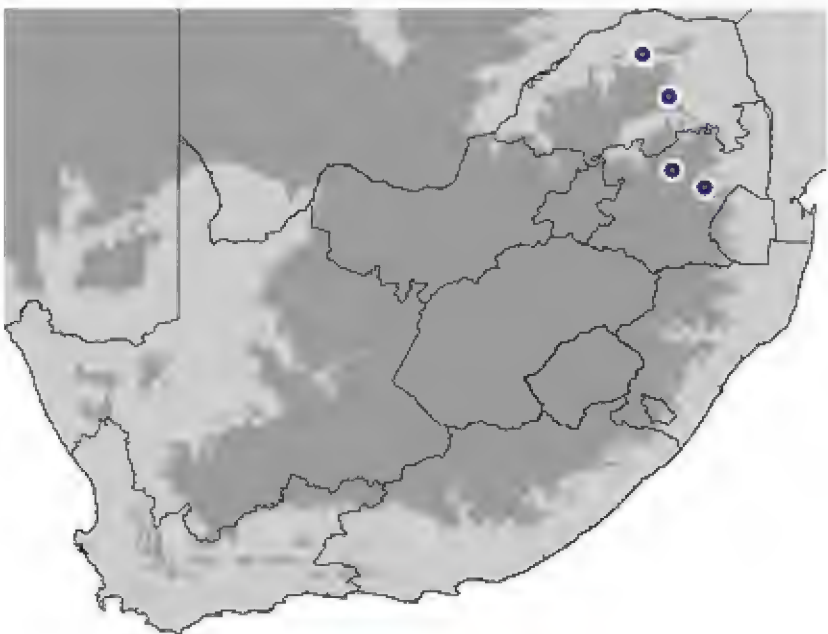
Forest Hawker (Usambara Hawker)

Zosteraeschna usambarica (Förster 1906)

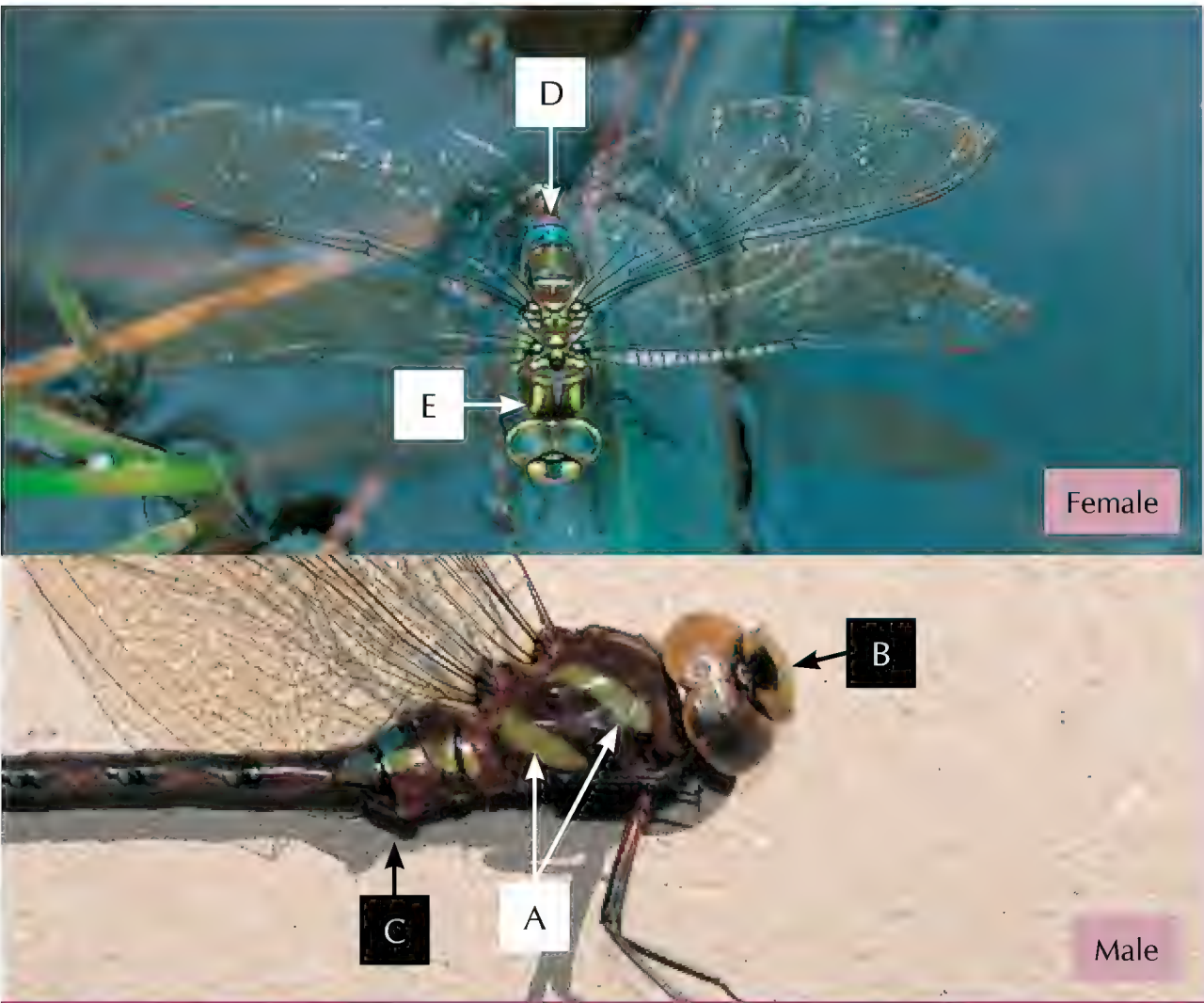
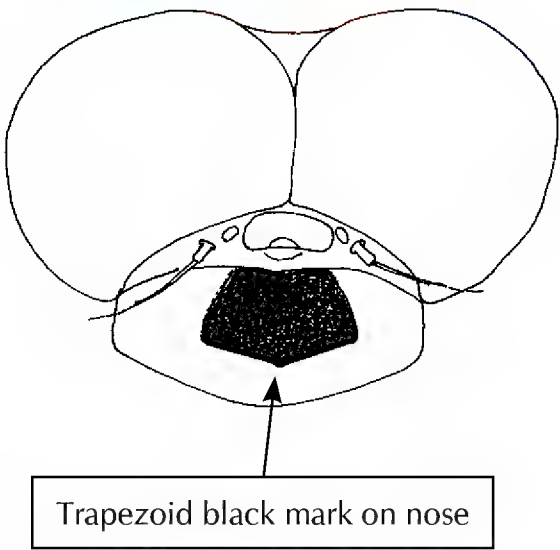
Appearance: The Forest Hawker is large to very large, brown, striped and spotted yellowish green and lime green and bears a small blue saddle on segment 2. Face lime green. Labrum yellowish green. Frons light green in front, yellowish at sides, top (nose) with distinctive trapezoid black mark. Head black with two green spots above. Eyes olive. Thorax dark brown with some yellowish green to light green stripes on shoulders and sides salad green, 1.5 mm wide. Wings slightly smoky, dark brown venation, membranule (inside area of hindwing) white on inside and dark grey on outside. Pterostigmas short, 2.5 mm long, black. Abdomen dark brown with large green spots. Second half of segment 2 has blue clover-shaped saddle. Female similar, also with blue abdominal saddle, but smokier wings.

Note: this species was formerly known as *Aeshna ellioti* (Elliot's Hawker).

Field notes: The Forest Hawker is a rare and localised resident of the mountains of Mpumalanga and Limpopo Province. Its range extends to East Africa and it occurs at high elevation pans and dams with grassy fringes and forests nearby. It hawks rapidly up and down pools and swamps and in the grassland next to and in the forest. On the wing from December to May.



Threat	DBI
LC	5



- Mostly green and brown
- Fine blue saddle
- Wide, light green side stripes
- A. Two light green stripes
- B. Trapezoid black mark on nose
- C. Small projection on segment 2
- D. Blue saddle
- E. Green shoulder stripe

Body length: 59–61 mm

Hindwing length: 39 mm



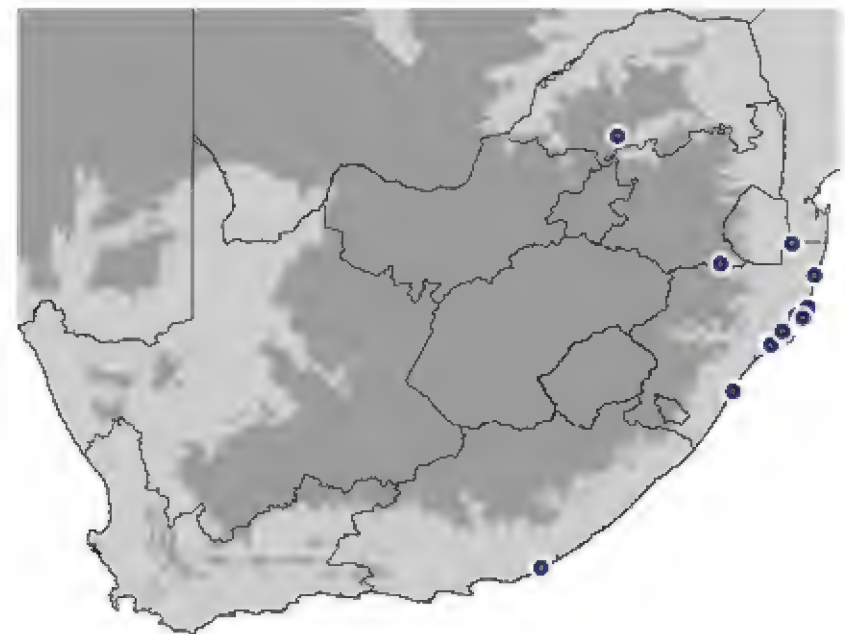


Evening Hawker

Anaciaeschna triangulifera McLachlan, 1896

Appearance: The Evening Hawker is very large, slender, dark brown with a bright blue head and abdominal saddle. Face light blue to pale grey at sides and towards labrum. Frons light blue above with black mushroom-like marking. Head blue above with two light blue dots in front of eyes. Eyes bright blue above, light blue below. Thorax dull brown with greenish yellow spots and two bright yellow diagonal stripes per side, shoulder stripes absent. Wings slightly smoky, becoming very smoky with age, veins black. Pterostigmas fairly short (3.2 mm), reddish brown. Membranule whitish towards rest of wing, becoming dark grey closest to abdomen. Abdomen slender, dark brown, shiny. Segment 1 with blue bar above, yellow bar below. Segment 2 from above brown in front half, bright blue in second half, from below yellow and brown. Segment 3 with bright blue patch in first half at sides and below. Rest of abdomen with small light blue spots that become larger on segments 8 to 10. Female considerably stouter, face yellowish with similar pattern on nose, eyes yellowish brown above with bright yellow margin below, abdomen reddish brown with pale blue markings.

Field notes: The Evening Hawker occurs along coastal KwaZulu-Natal and low areas of the Limpopo Province; there is a coastal record from the Eastern Cape. Its range extends to central and East Africa, as well as Madagascar. It occurs in swampy forests with clearings where it flies at dusk over reed beds and between trees, also along the beach. Feeding swarms of up to 30 individuals can occur.

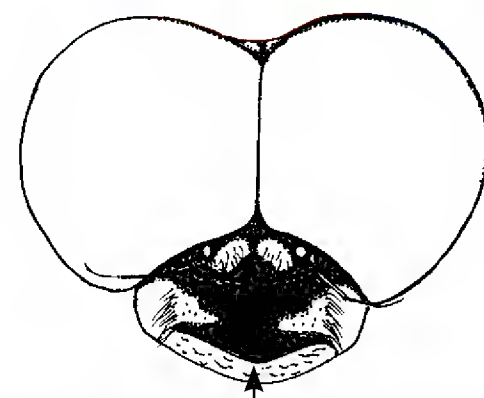


Threat

LC

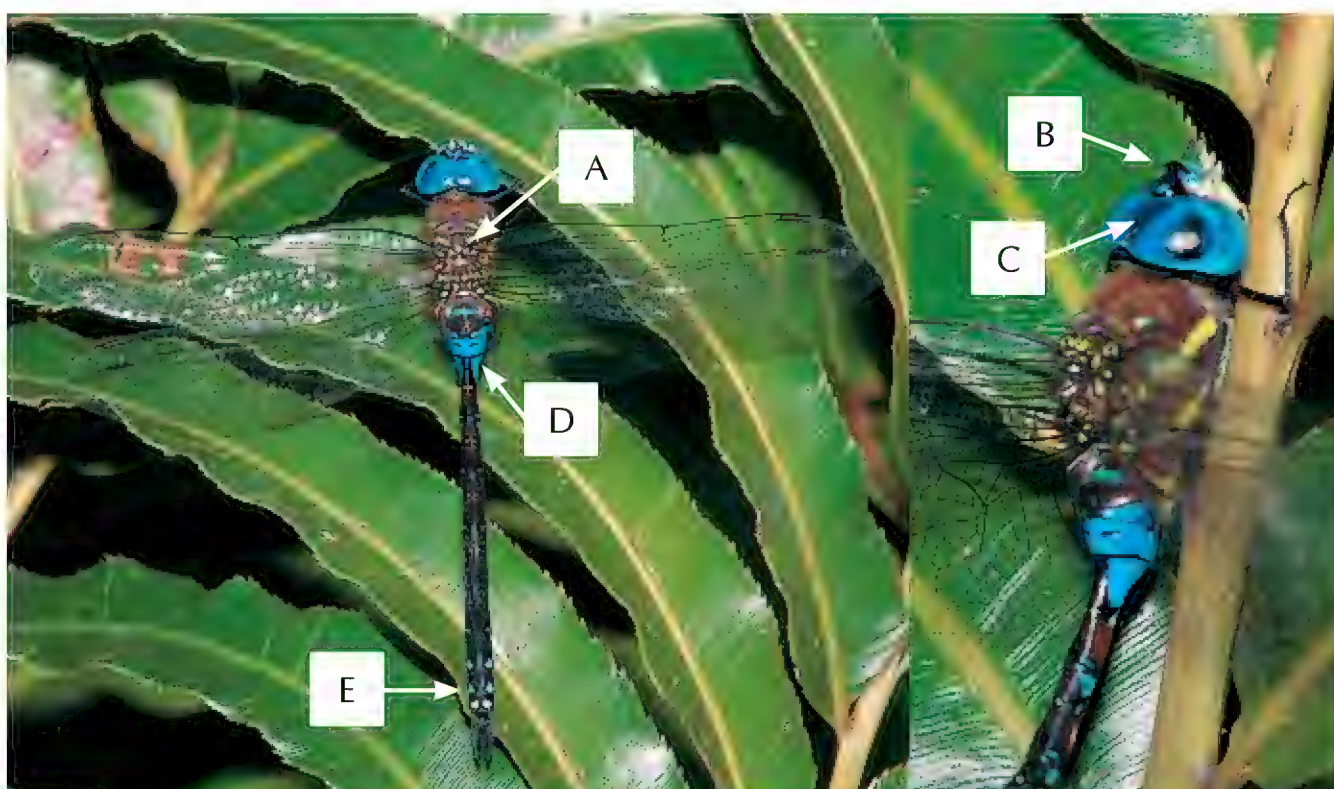
DBI

4



Mushroom-shaped mark on nose

During the day it keeps among thick undergrowth from where it takes off rapidly when disturbed, landing again quickly in a dark recess of vegetation. On hot, sultry afternoons, it may sometimes hover over pools with thick abundant grass and reeds beside forest, or it may hawk swiftly among trees in marshy areas. On the wing from December to April, more common early in the season.



- A. Yellowish green spots between wings
- B. Mushroom-shaped mark on nose
- C. Bright blue face and eyes
- D. Large blue saddle
- E. Dark abdomen with terminal spots

Body length: 62–63 mm

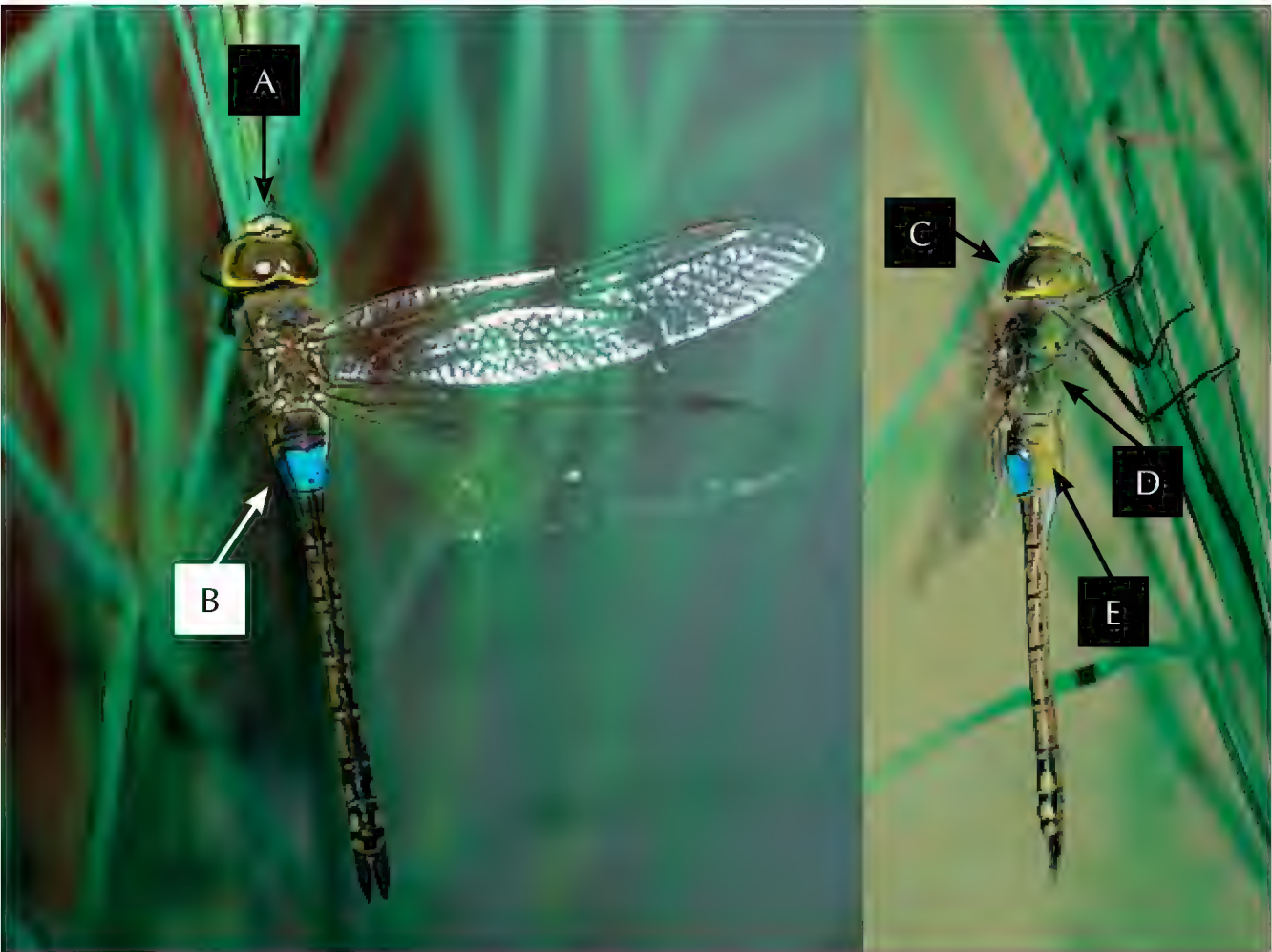
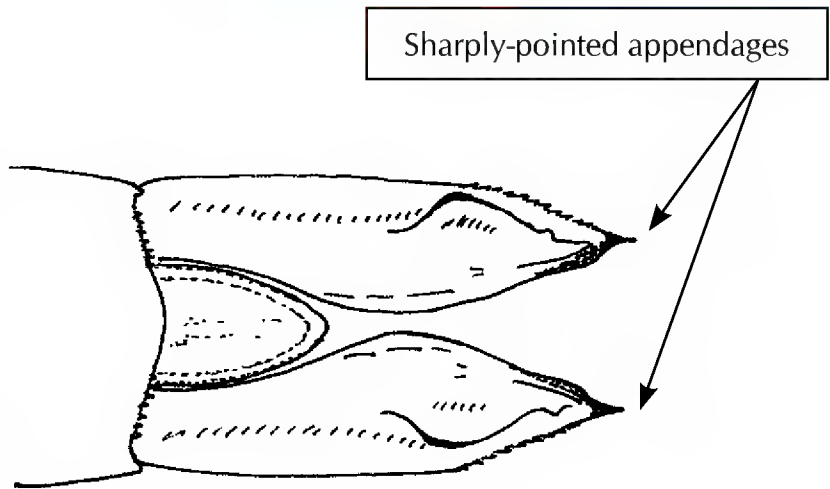
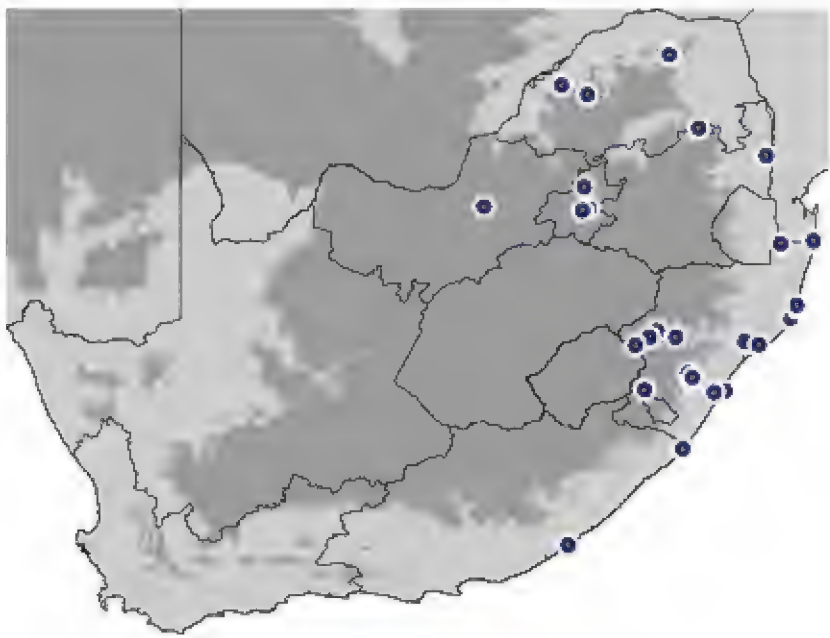
Hindwing length: 42 mm

Vagrant Emperor

Anax ephippiger (Burmeister, 1839)

Appearance: The Vagrant Emperor is large to very large, stout, dark brown and relatively unmarked, with a large bright blue abdominal saddle. Face all greenish yellow with dark brown band along tip of nose. Labrum yellow. Top of head black with greenish central mark. Eyes very large, brownish olive above and in front, yellow behind and below. Thorax all dull brown above, becoming greenish then yellowish below. Wings very pointed, become dark smoky with age, large smoky spot present in centres, veins brown. Pterostigmas long (5 mm), light brown. Abdomen indistinctly marked dark greenish brown and brownish olive, large bright blue saddle covering most of upper surface of segment 2. Female similar, much more reddish and less distinctly marked, blue saddle absent.

Field notes: The Vagrant Emperor is a migratory species that occurs from the Eastern Cape to most of the eastern and northern regions of South Africa. It has a very wide range, which includes Europe, the Indian Ocean Islands and western Asia. It is an opportunistic species that breeds in flooded shallow grassy pools, often those fringing larger pools. It hawks rapidly, close to the water surface. Tandem pairs are often seen. On the wing from November to April, most common in early summer.



- Thorax relatively unmarked, brownish
 - Large blue saddle
 - Virtually unmarked nose
- A. Relatively unmarked nose
B. Large blue saddle
C. Green to brown eyes
D. Relatively unmarked thorax
E. Green side

Body length: 60–61 mm

Hindwing length: 44–45 mm

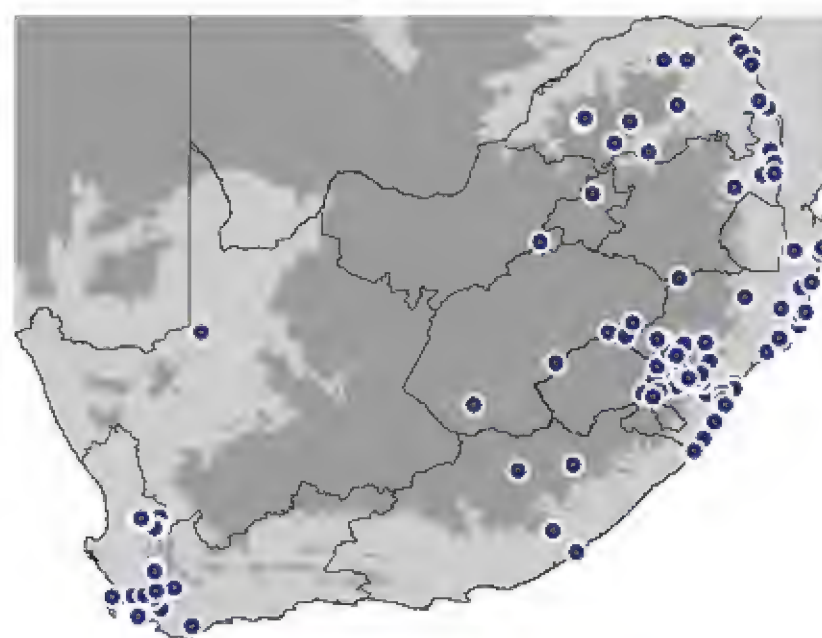


Blue Emperor

Anax imperator Leach, 1815

Appearance: The Blue Emperor is very large, bright blue and black. Face light to greenish blue. Nose with transverse dark smudge above, black basal spot. Top of head greenish blue. Eyes bright blue above, greenish blue below. Thorax green with two turquoise green patches between wings. Wings clear, becoming smoky with age, veins brown. Pterostigmas long (4.8–5.0 mm), reddish brown. Abdomen bright blue with variable wide black line running along top. Female with yellow and green face with black dot on upper surface of nose, eyes olive, thorax light to mid green, wings slightly smoky becoming smoky with age, pterostigmas long (5 mm) and reddish brown, segment 1 yellowish green, segment 2 mostly pale blue, segment 3 pale blue below, majority of rest of abdomen dark brown with some light greenish to blue patches on sides.

Field notes: The Blue Emperor is widespread and common throughout most of South Africa from sea level to about 2 000 m elevation. It is generally fairly rare in the Northern Cape and in the Tsitsikamma region; widespread across Africa, Europe and western Asia. It flies mostly around pools and dams with an abundance of waterweeds, lilies and fringing reeds, rapidly hawking up and down, about 1–2 m above the water surface, especially along the reedy fringes. It is sometimes found hawking over grassland at about 2 m above the ground. Along the east



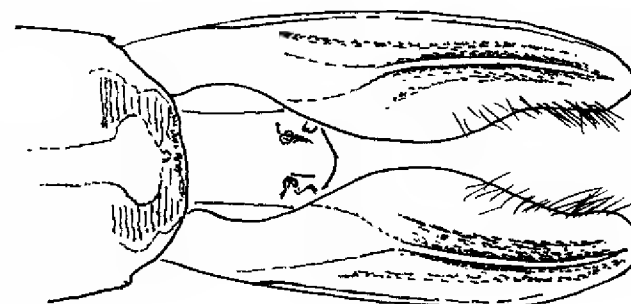
Threat

LC

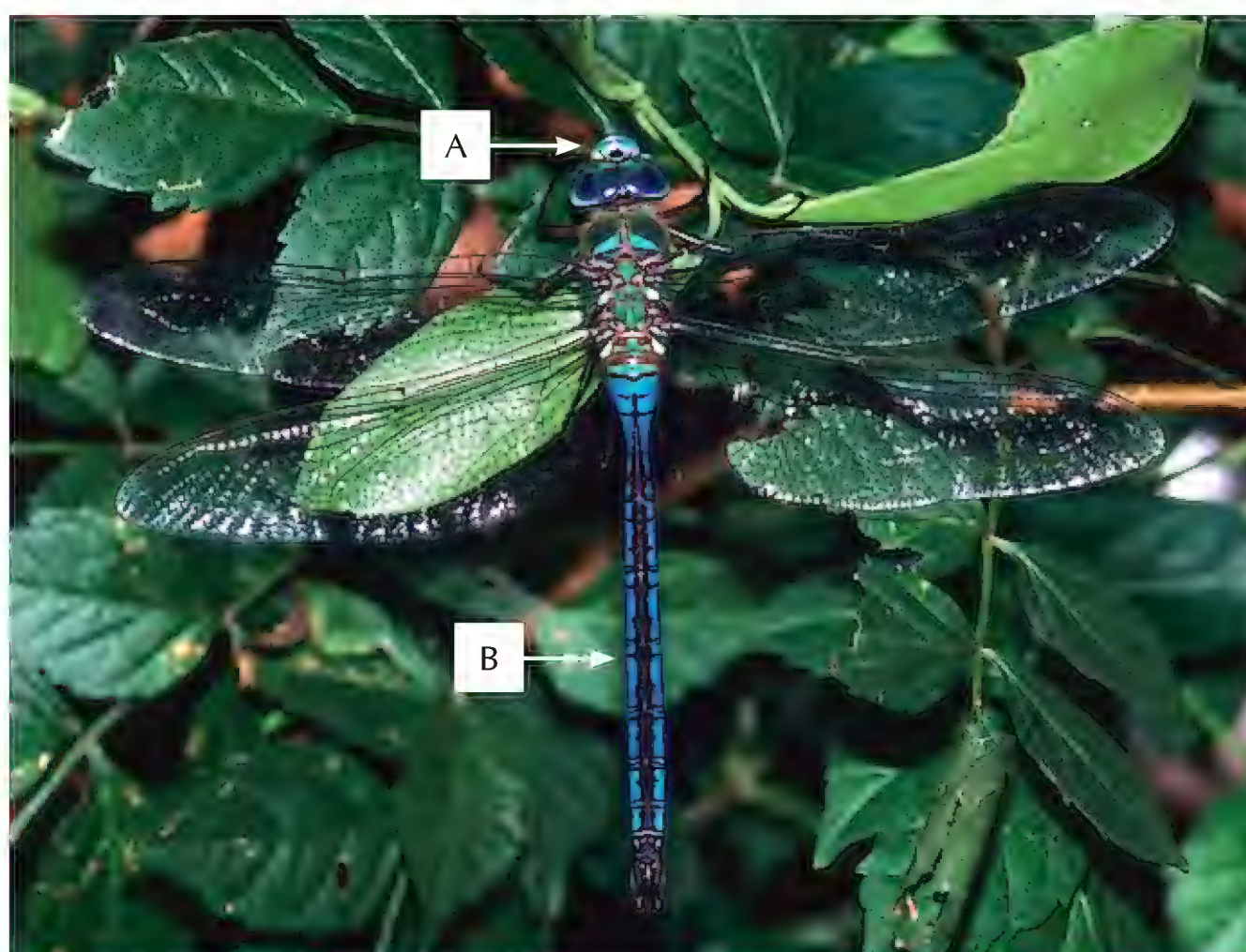
DBI

1

Paddle-like superior appendages



coast it also flies at dusk and even into the night, sometimes very close to the ground. On the wing from October to June, occasionally seen from July to September.



- Unmistakable: very large and blue

A. Blue nose
B. Striking blue body

Body length: 74–75 mm

Hindwing length: 50–51 mm

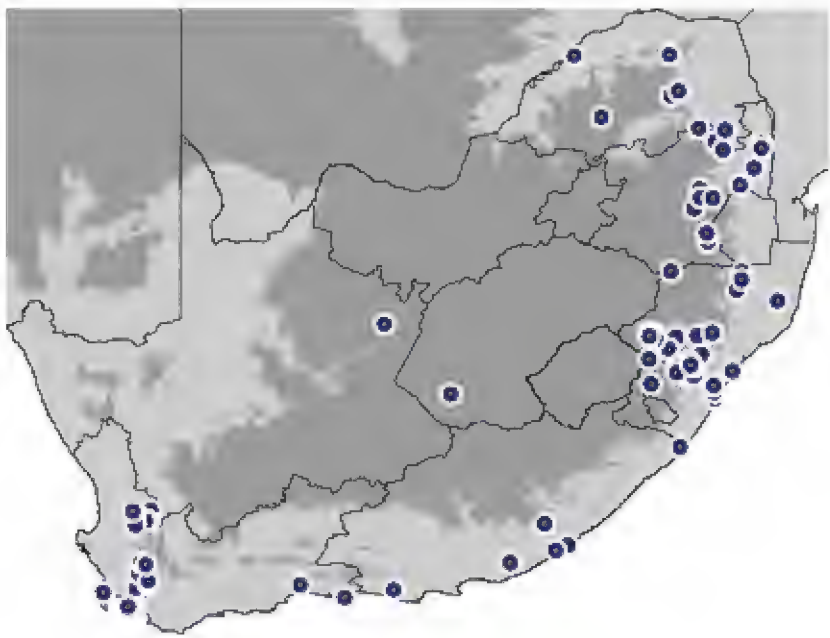


Orange Emperor

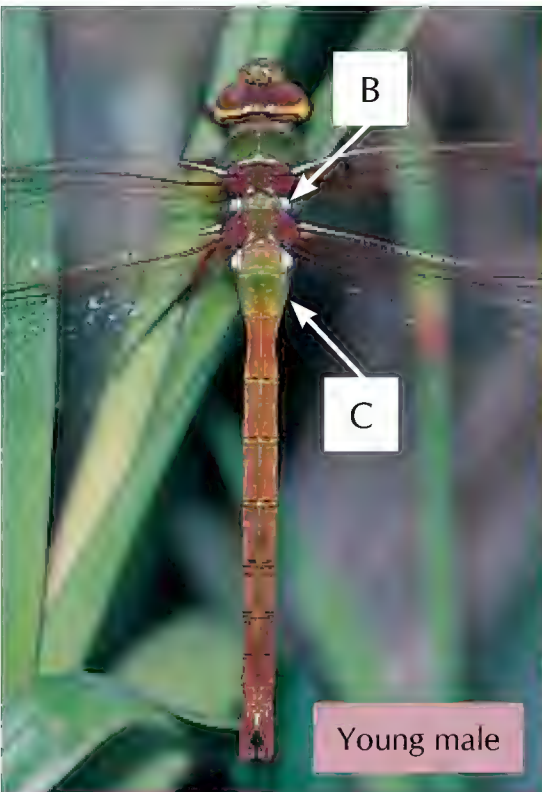
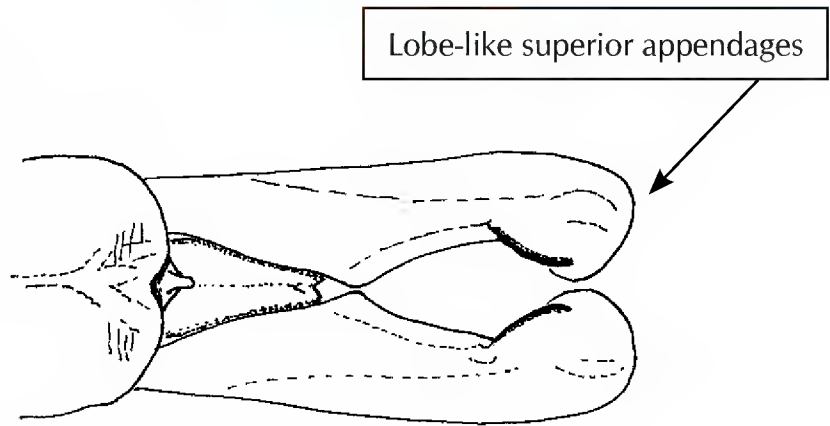
Anax speratus Hagen, 1867

Appearance: The Orange Emperor is enormous and all orange. Face dull orange. Thorax dull orange, young individuals in the KwaZulu-Natal Midlands often have a bright green thorax. Wings clear becoming smoky with age, veins orange brown. Pterostigmas of medium length (4 mm), orange brown. Abdomen and appendages bright orange. Female similar, stouter, thorax mostly green, abdomen with green base, young individuals with white spot on thorax at base of each wing.

Field notes: The Orange Emperor occurs throughout much of South Africa from sea level to 1 700 m elevation. It is rare in the Northern Cape and its range extends to East and West Africa. It hawks along bush- and reed-lined streams and small rivers with moderate currents, and may occasionally be seen at pools. It moves at speed along the river or river bank. When flying over water, it is barely 1 m from the surface. It is often seen ovipositing in vegetation just below the surface, at the stream edge. On the wing from late September to April.



Threat	DBI
LC	2



- Unmistakable: enormous and all orange
- A. All orange body
- B. White spots
- C. Green abdomen base

Body length: 76–78 mm

Hindwing length: 53–54 mm



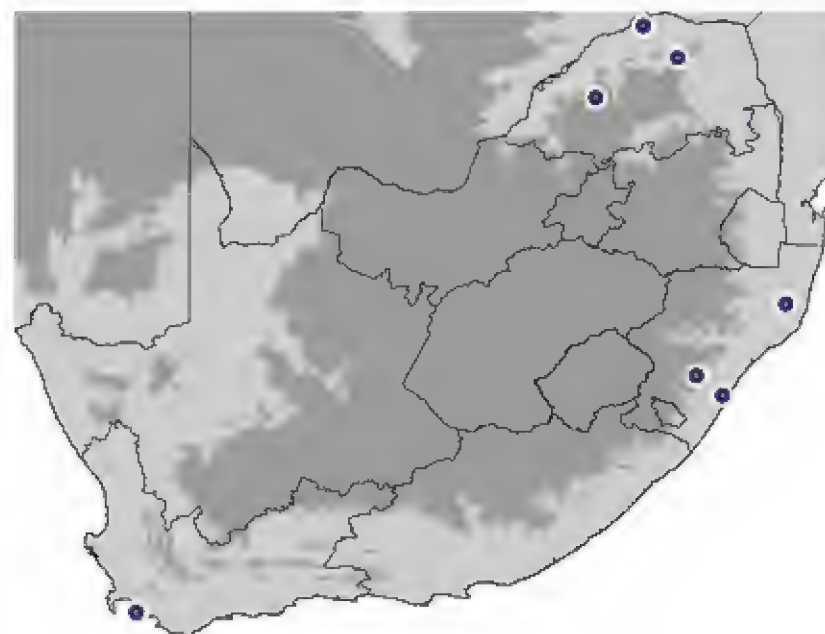


Black Emperor

Anax tristis Hagen, 1867

Appearance: The Black Emperor is enormous, mostly black, with a distinctive cream ring at the base of the abdomen. Face all green with blackish basal triangle on top of frons. Eyes green. Thorax a mixture of green and brown. Wings slightly smoky particularly in central areas, dark brown spot beside membranule. Pterostigmas long (5 mm), reddish brown. Abdomen and appendages mostly black. Segment 1 with cream dorsal patch, segment 2 with wide cream ring running all the way around. Segments 4 to 9 with small cream spots above. Segment 10 black. Female similar, stouter, shorter, appendages shorter and leaf-like, wings generally fairly smoky.

Field notes: The Black Emperor has been recorded at various widely separated localities from the Western Cape to the far north. However, it is most common in the Limpopo Province and its range extends to East and West Africa, Madagascar, the Indian Ocean Islands and Sri Lanka. It occurs around moderately sized pools and dams, as well as water holes in open and savanna areas, sometimes even attracted to pools without any fringing vegetation. This enormous and powerful dragonfly flies at great speed across and around pools. It tends to be inquisitive and will often come in close to the observer, but if disturbed it will fly straight into the sky at enormous speed.

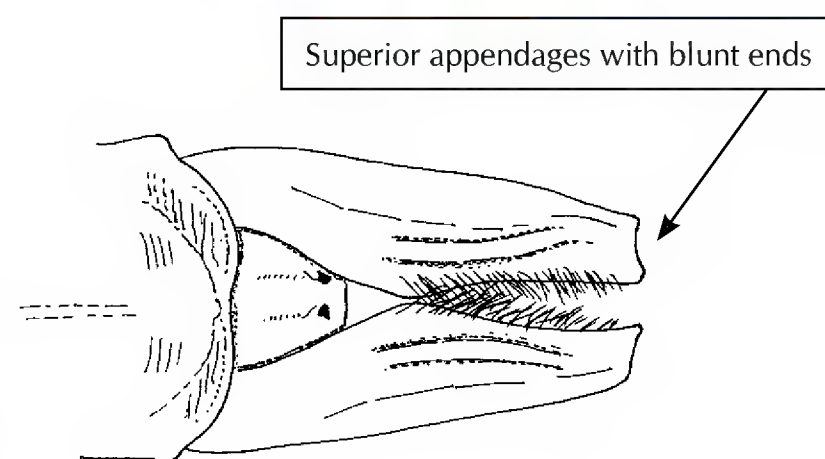


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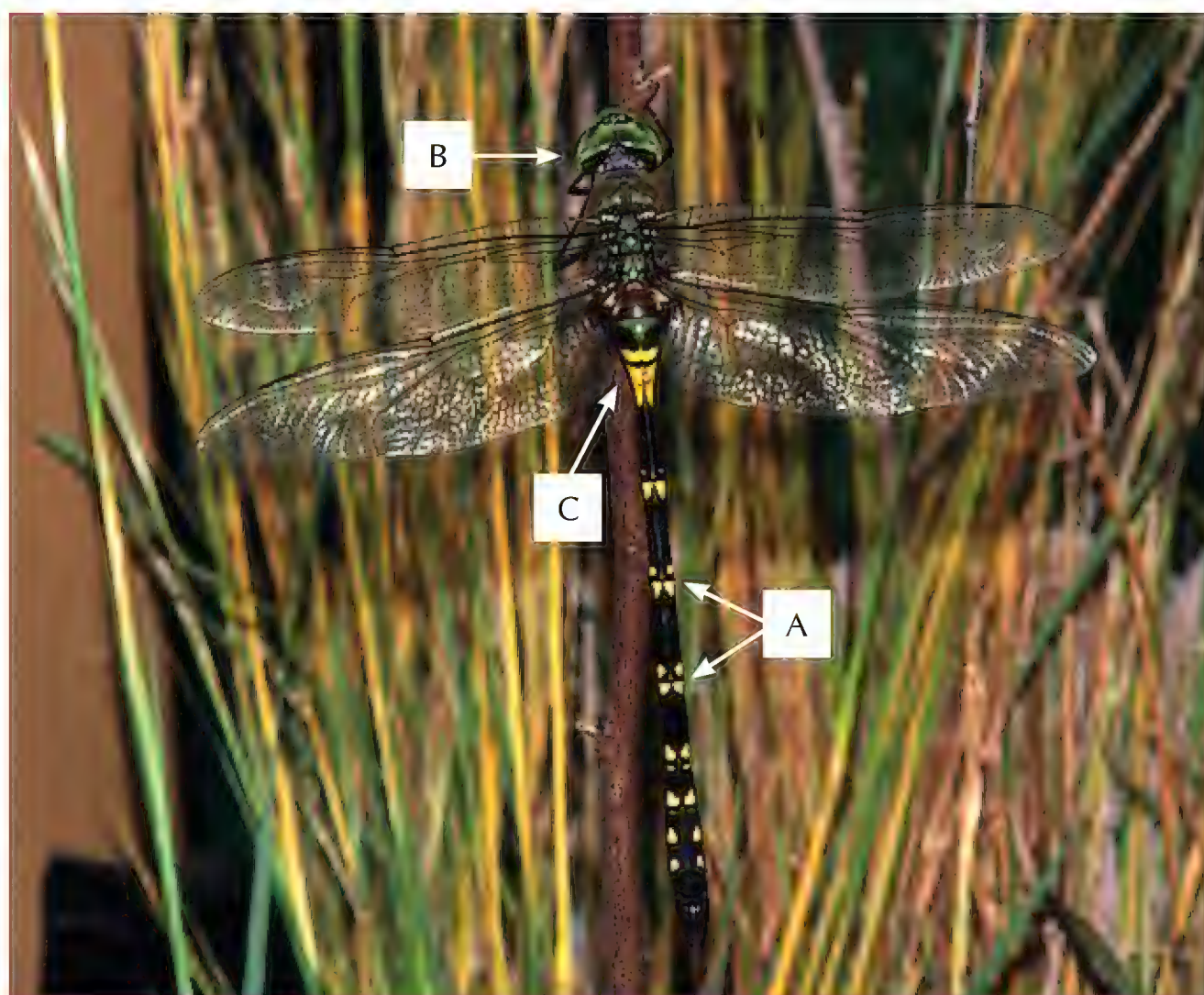
LC

DBI

4



It lays its eggs in floating vegetation and logs. On the wing from November to May, most common in December.



- Striking: enormous and black
- Cream saddle
- A. Black abdomen with cream spots
- B. Green eyes
- C. Cream saddle

Body length: 118–120 mm

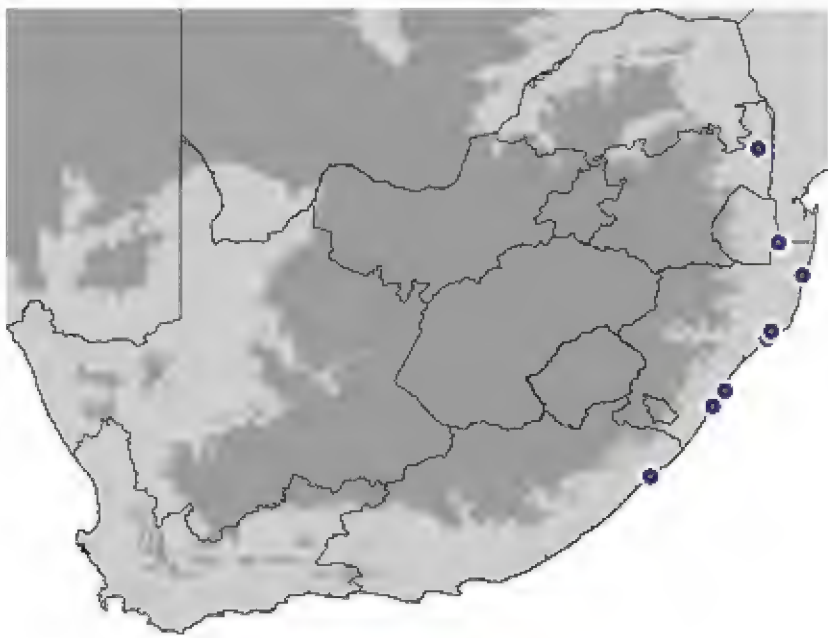
Hindwing length: 62–63 mm

Little Duskhawker

Gynacantha manderica Grünberg, 1902

Appearance: The Little Duskhawker is large, slender, mottled brown, with slightly smoky wings and a small blue abdominal saddle. Face greenish buff. Nose olive to brown, with long dark brown smudge above. Eyes brown above, buff below. Thorax smudged dull green, becoming brown with age and with several small blue spots between wing bases. Wings very broad and rounded, slightly smoky becoming dark smoky with age, 13 to 19 antenodal crossveins. Pterostigmas rusty brown, 3.5 mm long. Membranule white. Abdomen patchy dark and light brown. Segments 1 and 2 wide, a quarter of the way along segment 2 becomes constricted creating a distinct waist. Auricles dull white above with black margins, 6 to 7 strong teeth. Segment 2 and first part of segment 3 bright blue, forming a saddle with a small gap on second half of segment 2. Female similar, larger, without blue abdominal saddle.

Field notes: The Little Duskhawker occurs along coastal northern KwaZulu-Natal into the south of the Kruger National Park. Its range extends north through Mozambique to East, Central and West Africa. It occurs at pools and dams in or near woodland or forest. It hawks swiftly over pools or in forest clearings at dusk, sometimes attracted to lights. It rests by day within about 1 m of the ground in thick dark undergrowth, sometimes hundreds of metres from water and often on a low hill. On the wing from November to April.

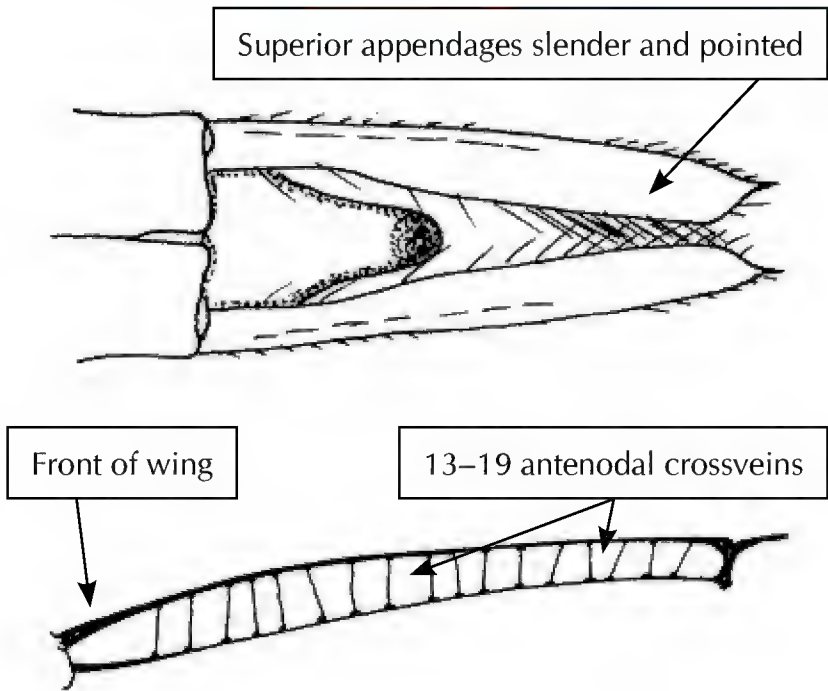


Threat

LC

DBI

4



- Body length 58–59 mm
- Brown eyes
- 13–19 antenodal crossveins

A. Blue spots

B. Narrow waist on segment 2

C. 13–19 antenodal crossveins

D. Wide and rounded wings

E. Brown eyes

Body length: 58–59 mm

Hindwing length: 37.5–38.0 mm



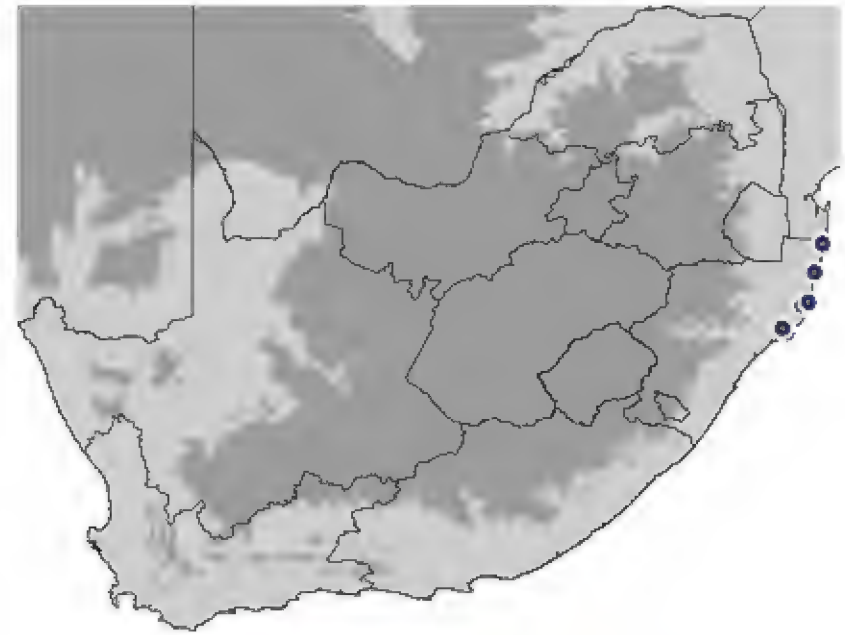


Eastern Duskhawker (Usambara Duskhawker)

Gynacantha usambarica Sjöstedt, 1909

Appearance: The Eastern Duskhawker is very large, slender and dark brown with blue and green spots between the wings. Face olive green. Nose deep olive green to brown with an indistinct dark brown mushroom-shaped mark above. Eyes bright green above, olive below with yellow hind margin. Thorax dark olive green above becoming lighter green on sides. Area between wings with small bright green and bright blue spots. Wings smoky becoming very dark in old individuals, 23 to 25 antenodal crossveins. Pterostigmas reddish to yellowish brown, 4 mm long. Abdomen dark brown with fine light brown rings. Narrowing of waist continues to the first half of segment 3. Sides and top of segments 1 and 2 with dull blue markings. Auricles dark blue with black tips and 5 teeth. Female similar, eyes darker, dark green replaces blue spots.

Field notes: The Eastern Duskhawker has only been recorded from coastal northern KwaZulu-Natal. Its range extends to East Africa and it occurs in thick coastal forest, especially swamp forest. It mostly flies swiftly at dusk in forest clearings and above the tree canopy, but resting by day in and among the dark recesses of bushes and ferns in the forest. Sometimes also flies low over the water on a sunny day after a cool, wet spell. On the wing from November to April.



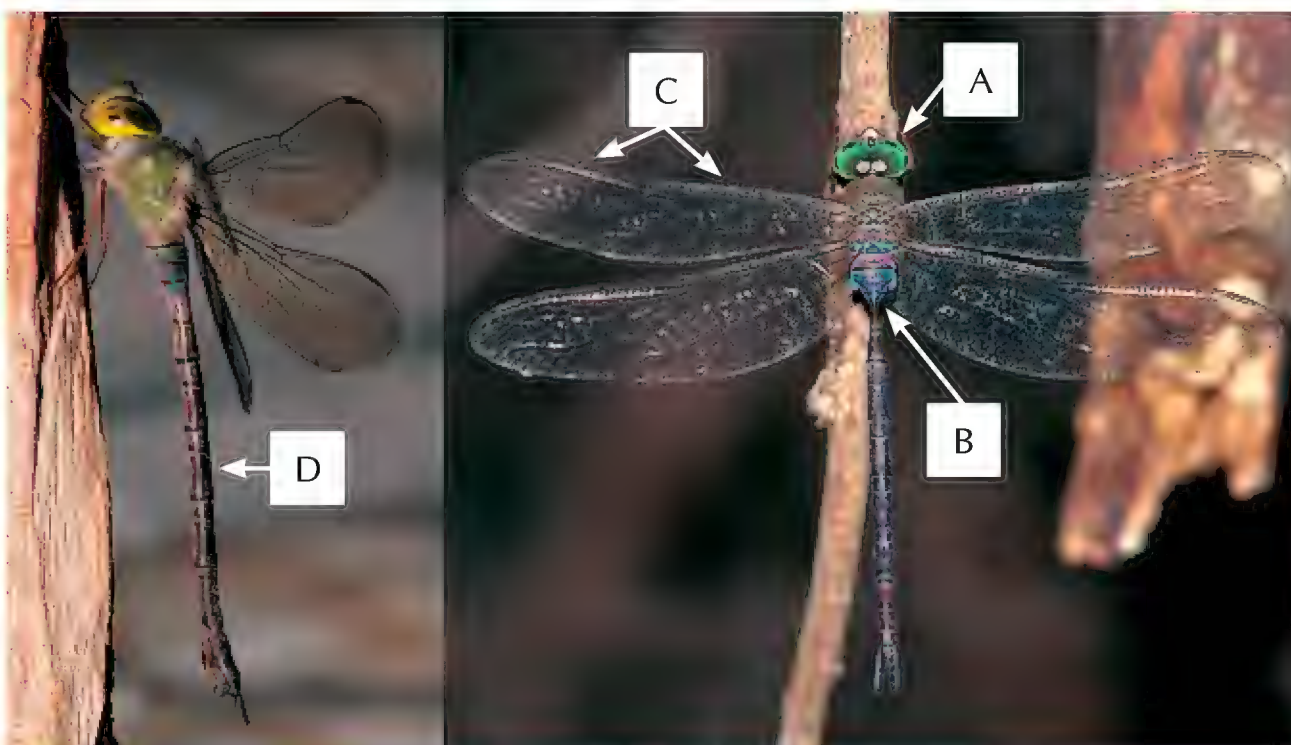
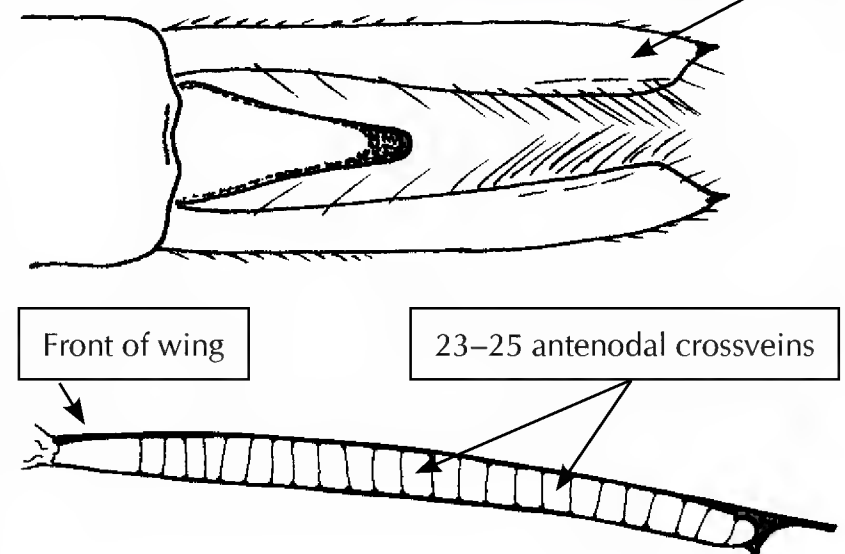
Threat

LC

DBI

6

Superior appendages simple and elegant



- Body length 64–65 mm
- 23–25 antenodal crossveins
- Eyes green above

- A. Eyes green above
- B. Mottled blue and black saddle
- C. 23–25 antenodal crossveins
- D. Abdomen relatively unmarked

Body length: 64–65 mm

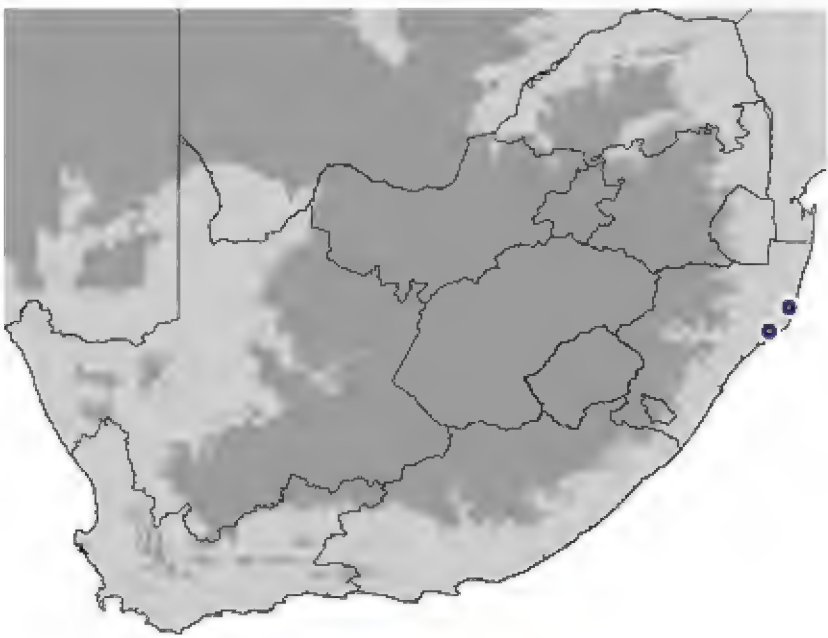
Hindwing length: 45 mm

Brown Duskhawker

Gynacantha villosa Grünberg, 1902

Appearance: The Brown Duskhawker is very large, mottled dull brown with smoky wings, especially at the base. Face olive green. Nose dark brownish olive green with dark brown T-shaped marking above. Eyes olive green above, pale green below, with a yellow hind margin. Thorax relatively unmarked, light greenish brown, distinctly hairy. Wings smoky becoming dark with age, about 25 antenodal crossveins. Pterostigmas reddish dark brown, 4.5 mm long. Abdomen long, slender, reddish dark brown with emerald saddle on segment 3. Auricles emerald green with black tips and 6 teeth. Female similar.

Field notes: In South Africa the Brown Duskhawker is only known from coastal northern KwaZulu-Natal. However, its range extends to East and West Africa. It occurs in humid, dense coastal forest with streams and pools. It hawks at dusk in forest clearings, resting by day in dense bush or forest. On the wing from November to April.

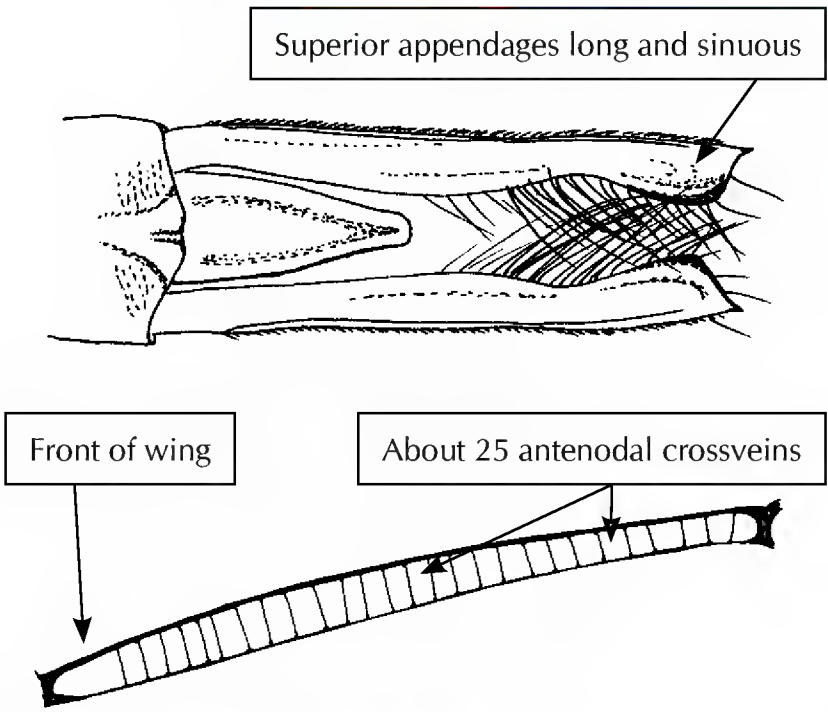


Threat

LC

DBI

6



- Body length 70–71 mm
 - About 25 antenodal crossveins
 - Eyes olive green above
- A. Relatively unmarked body
B. Eyes olive green above
C. Emerald saddle

Body length: 70–71 mm

Hindwing length: 51–54 mm



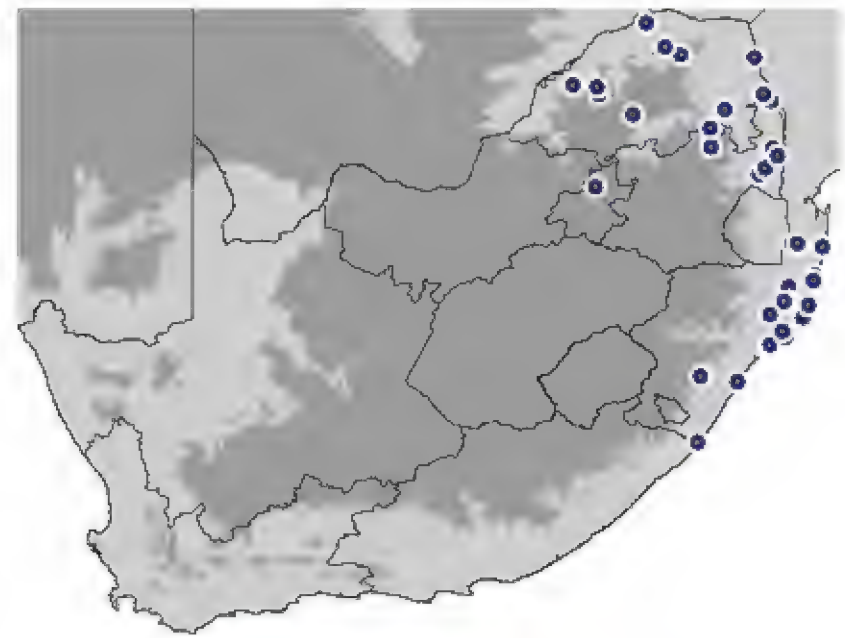


Common Tigertail

Ictinogomphus ferox (Rambur, 1842)

Appearance: The Common Tigertail is very large, with black and yellow tiger stripes, a big head and thorax, and the long and thin abdomen has a large club. Face greenish yellow with small central dark brown spot on labrum, two spots on anteclypeus. Nose with fine brown bar in front joined to a small central line above, sharply angled with fine lip. Head black and yellow from above with two small yellow horns and central yellow simple eye. Eyes bluish grey. Neck yellow with black blotches. Thorax narrow, all dark brown with wide dull yellow to yellowish green stripes. Wings clear with crisp black veins, becoming smoky with age. Pterostigmas very long (5.5–6.0 mm), pitch black. Abdomen alternately brownish black and greyish yellow. Segment 8 with large round foliations, black with little basal yellow. Superior appendages long, pointed, yellow with fine black tip. Inferior appendages crooked, yellow with fine black tip. Female similar to male.

Field notes: The Common Tigertail occurs along the KwaZulu-Natal coastal plain and north to Mpumalanga and Limpopo Province, with a record also from Gauteng. It mostly occurs up to 250 m elevation, and occasionally up to 700 m, with one individual having been recorded at 1 400 m elevation. Widespread to East and West Africa. It frequents dams, pools, marshes and still reaches of rivers with an abundance of reeds, grasses and stout twigs on which it perches. It perches with the abdomen straight or slightly

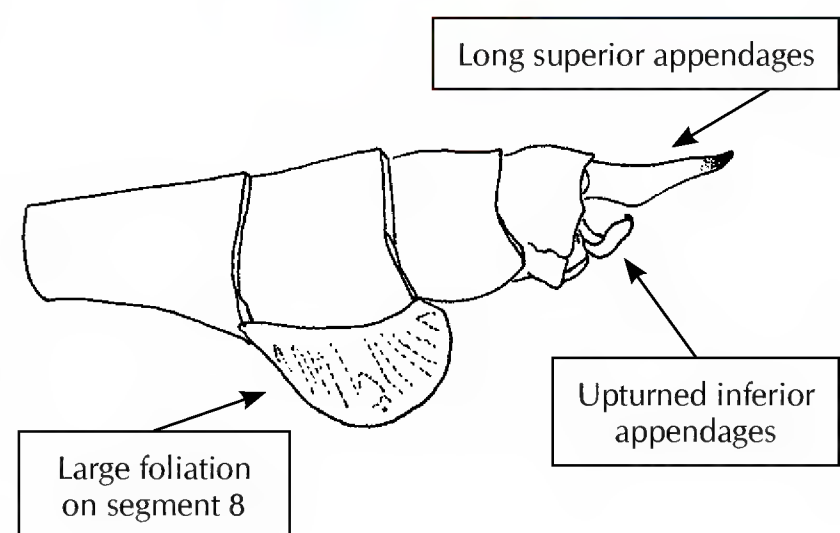


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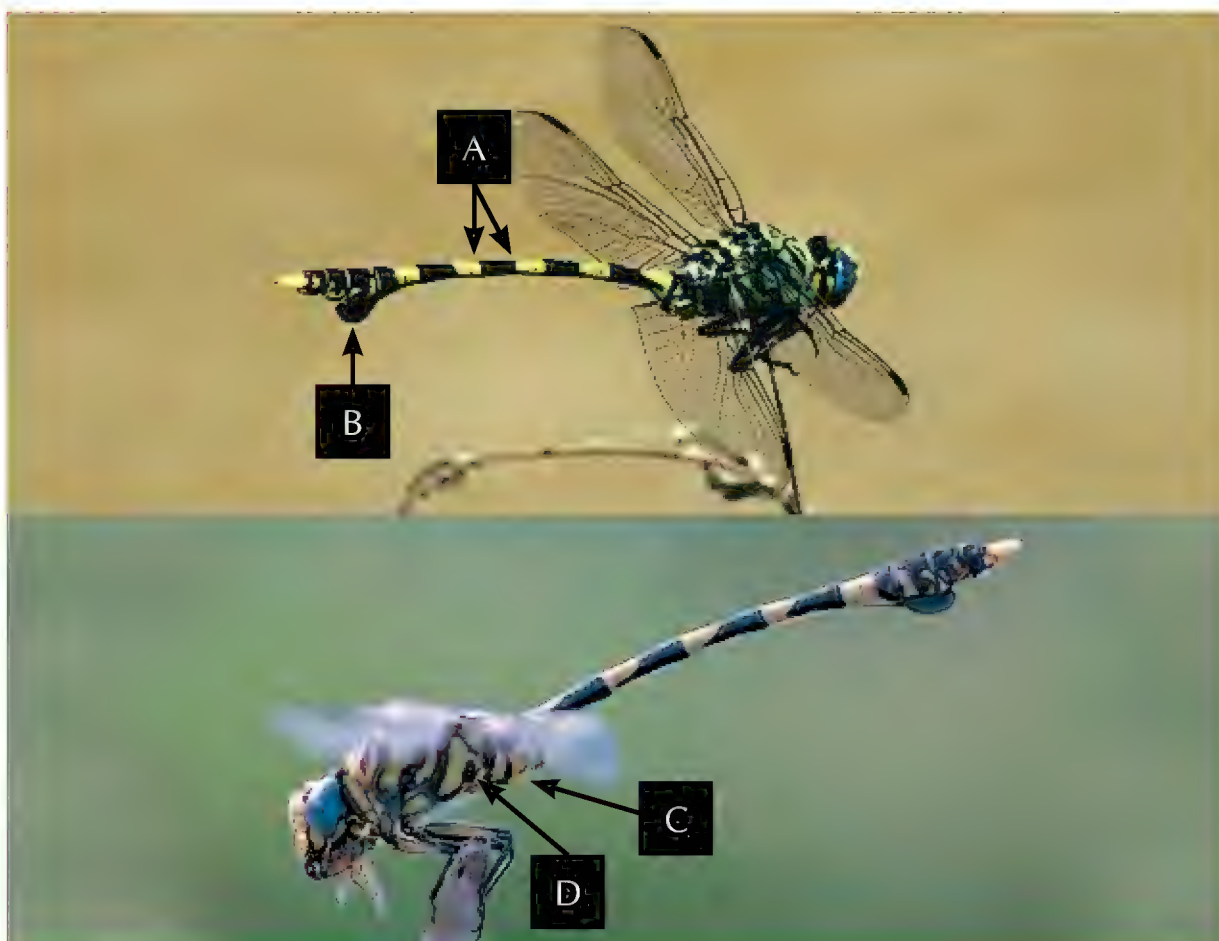
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DBI

2



raised on a twig or a stout reed 1–2 m above the water margin. It sometimes hawks among savanna trees, even at dusk. On the wing from November to May.



- Very large
- All dark brown/black and yellow
- From above, abdominal rings of yellow and black of equal length
- Dark brown side stripes are narrow

- A. Black and yellow rings of similar length
- B. Large black foliations on segment 8
- C. Small yellow hamules
- D. Narrow dark brown side stripes

Body length: 73–75 mm

Hindwing length: 42–43 mm

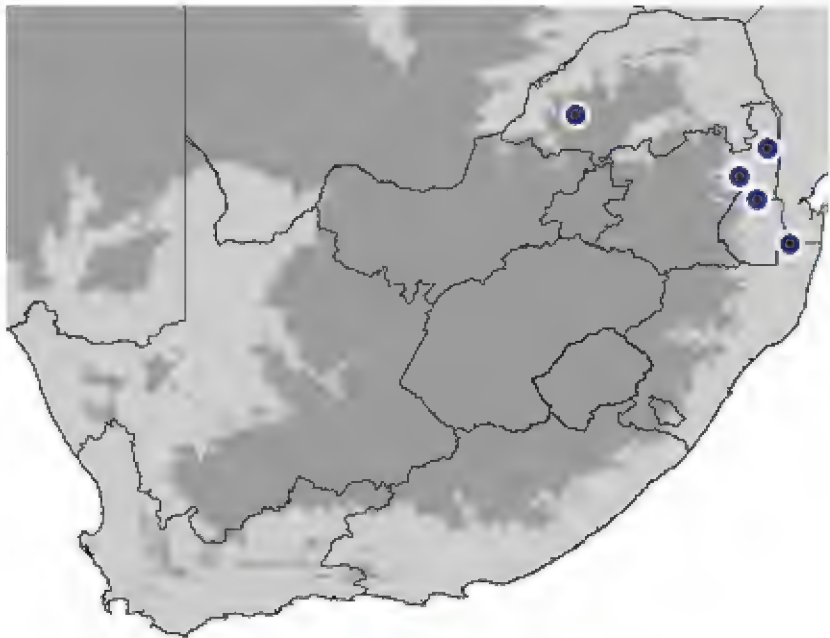
Southern Fingertail

(Quarre’s Fingertail)

Gomphidia quarrei (Schouteden, 1934)

Appearance: The Southern Fingertail is fairly large with a distinctly striped black and yellow thorax and a very slender clubbed abdomen without foliations. Face greenish yellow with fine dark brown and black spots and transverse lines. Eyes brownish above, greyish green below. Neck black above, black with yellow spots on sides. Thorax yellow to yellowish green with dark brown stripes, yellow and brown stripes of equal width. Wings clear, slightly smoky at tips. Venation brownish black, leading edge of costa yellow. Pterostigmas long (5 mm), narrow, black. Abdomen slender with black and yellow rings, widening at segment 7 into a club without foliations. First two-thirds of segment 7 bright yellow. Superior appendages long, yellow with black tips. Inferior appendages extremely short, dark brown, conical. Female similar, yellow is reduced but bold yellow mark on segment 7 is distinctive.

Field notes: The Southern Fingertail has only been recorded in Limpopo Province, the lowveld of Mpumalanga and in northern KwaZulu-Natal. Its range extends to East and Central Africa. It occurs along the bushy fringes of large streams and rocky rivers in savanna areas. It perches conspicuously on the top of reeds. On the wing from September to April.

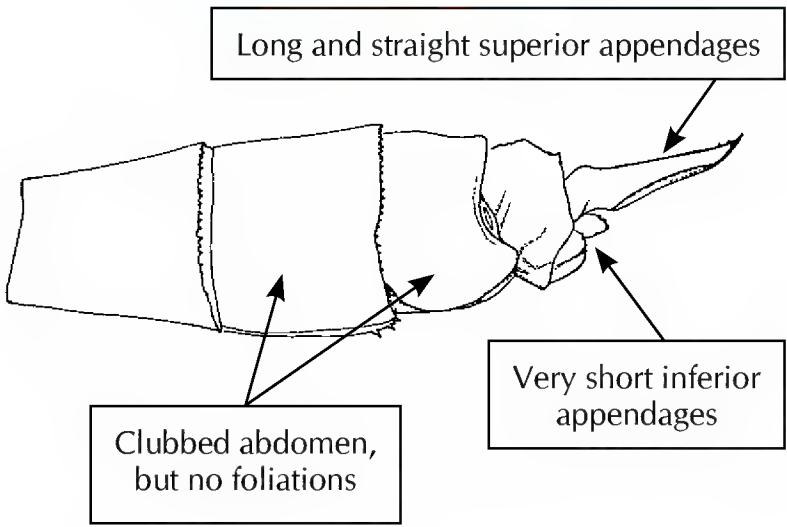


Threat

LC

DBI

6



- Fairly large (not as large as the Common Tigertail)
- All dark brown/black and yellow
- No foliations
- A. Leading edge yellow
- B. Short yellow rings
- C. Long black rings

Body length: 51–52 mm

Hindwing length: 38–39 mm

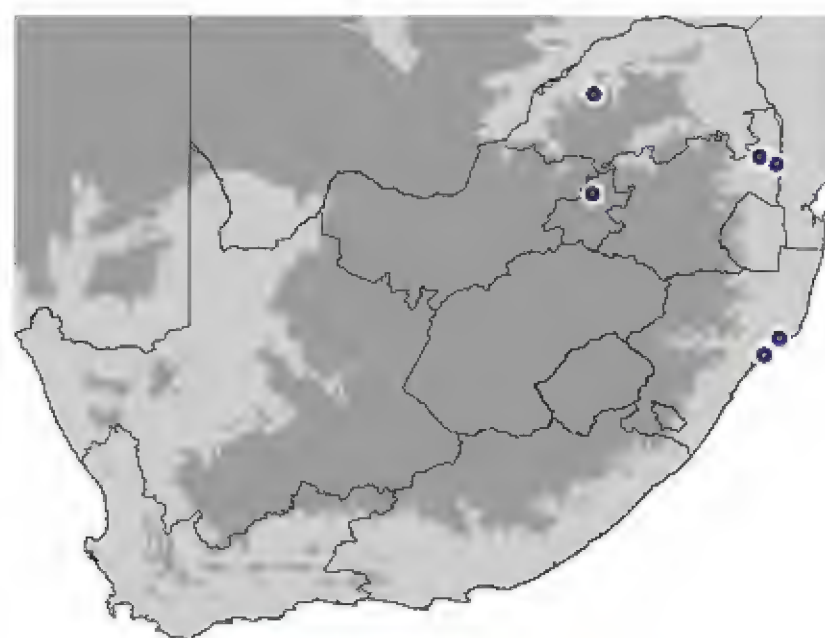


Spined Fairytail

Lestinogomphus angustus Martin, 1911

Appearance: The Spined Fairytail is medium sized, slender, narrow winged, salad green and blackish striped and lacks abdominal foliations. Face salad green with fine transverse brown line. Head blackish above. Eyes turquoise above, light sage green below. Neck light green and black spotted. Thorax light green with fine blackish stripes. Wings clear, narrow. Pterostigmas dark brown, 2.5–2.6 mm long. Abdomen yellowish green to green, with blackish rings. Segments 7 to 10 only slightly swelled, hinting at a club. Foliations absent. Segment 10 as long as segments 8 and 9 together. Segments 8 to 10 reddish brown and blackish. Appendages very short and complex. Female similar, markings on thorax less intense, also with long segment 10.

Field notes: The Spined Fairytail is localised in northern KwaZulu-Natal, southern Kruger National Park, Limpopo Province, and Gauteng. Its range extends to Central Africa. This little gomphid occurs in dense bush or forest adjacent to rocky rivers in warm coastal or savanna areas. It perches mostly under bushes or trees, resting horizontally along grass stems or twigs. It uses segment 10 as a monopod by turning it 90° downwards. On the wing from November to May.

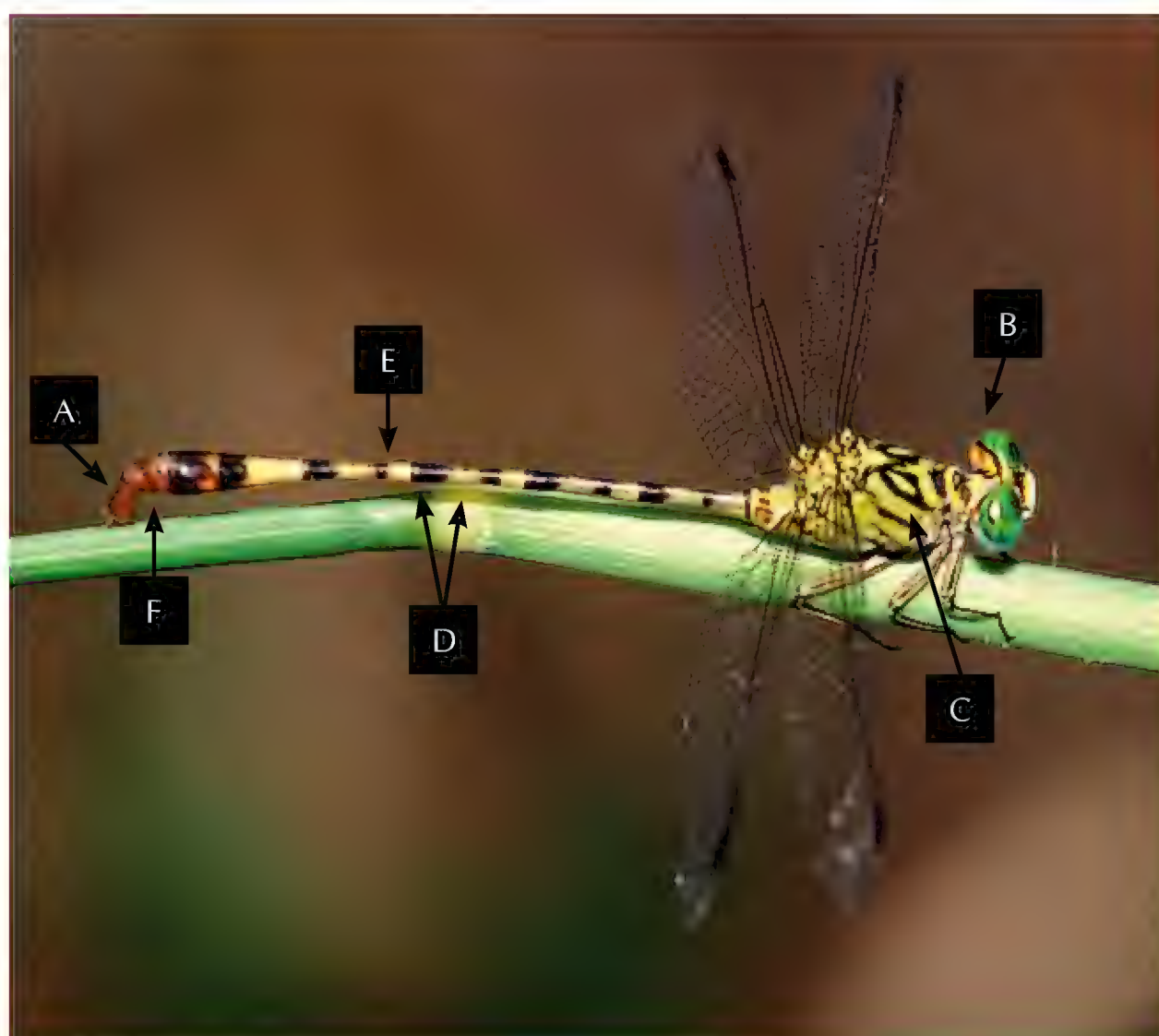
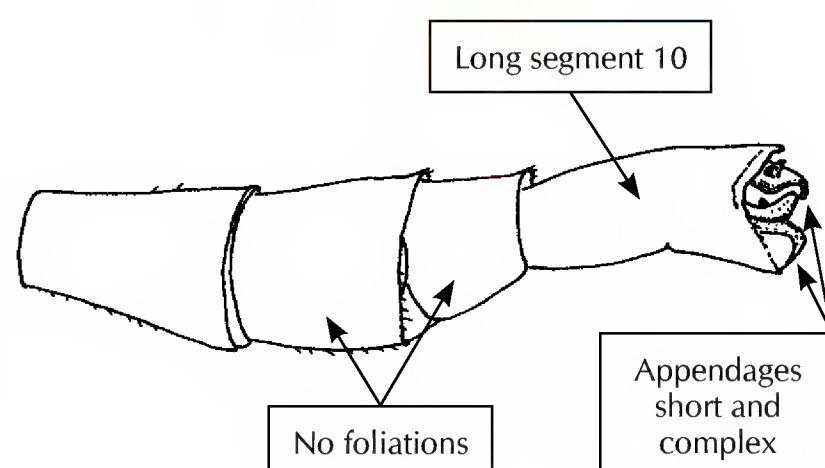


Threat

LC

DBI

5



- Tiny for a clubtail
- Perches along vegetation
- More light colour than dark
- Slender

- A. Long segment 10 used as monopod
- B. Eyes turquoise above
- C. Fine lines on thorax
- D. Yellowish green and blackish rings of variable width
- E. Slender abdomen
- F. Brown tail tip

Body length: 38 mm

Hindwing length: 21.5–22.0 mm



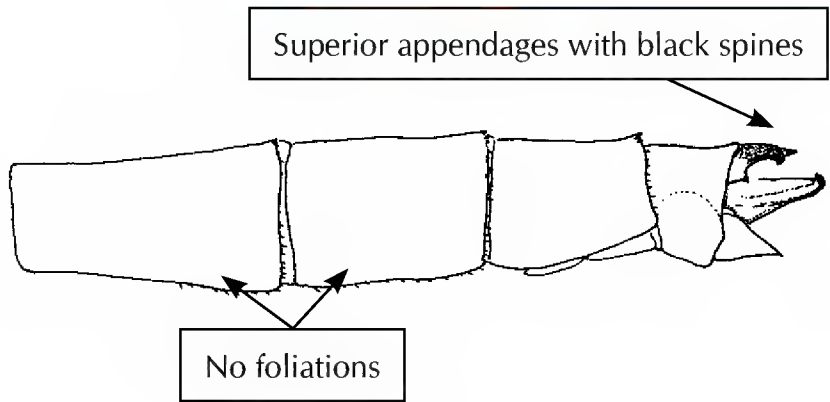
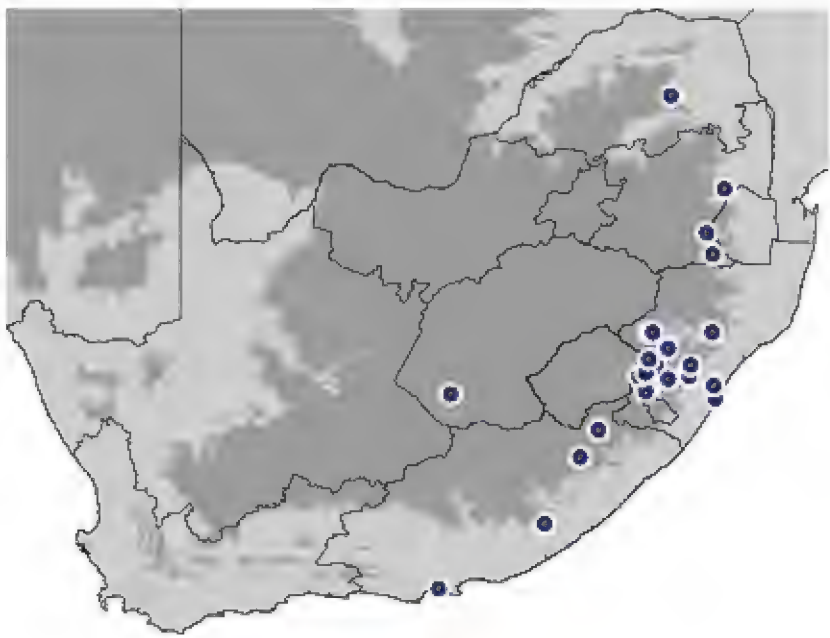
Yellowjack

(Yellowjack Longleg)

Notogomphus praetorius (Sélys, 1878)

Appearance: The Yellowjack is fairly large, all yellow and black, without a club and with a long bright yellow stripe running the length of the top of the abdomen. Face pale greenish yellow. Nose pronounced and raised. Head shiny black with two fine yellow crossbars from above. Eyes bluish grey. Neck black with yellow spots. Thorax boldly and brightly striped in bright yellow and black. Wings slightly smoky, especially at tips. Costa bright yellow, darkening with age. Pterostigmas long (4 mm), dark brown between black veins. Femora of hind legs very long, almost reaching segment 3. Abdomen with bright yellow line running its length along the top, yellow line bordered by equally wide black lines running length of abdomen. Foliations absent. Superior appendages of medium length, yellowish in first half, then black, terminating in distinct spines. Inferior appendages fairly long, brown and black, with blunt point. Female similar in colour, stouter.

Field notes: The Yellowjack is common in the KwaZulu-Natal Drakensberg and is also found in the higher areas of the Eastern Cape, Free State, Mpumalanga, the Limpopo Province and Lesotho. It occurs at high elevations in Malawi, Mozambique, Zambia and Zimbabwe. Its preferred habitat is among tall grass or on boulders beside or in clear open and fast, high-elevation streams (usually above 1 000 m). Sometimes found around the edge of high elevation dams. Unlike



most other gomphids, this species is a weak flyer and easily disturbed from long grass along the river bank. Once in flight it soon lands again. It can sometimes be seen sitting on warm stones in small streams. A fairly late season species. On the wing from late December to May.

- High elevation species
- No foliations
- Dorsal yellow stripe
- Abdomen of similar width all along

A. Black side line
B. Very long back legs
C. Yellow leading edge
D. Abdomen cylindrical
E. Two double stripes
F. Divergent appendages
G. Eyes bluish grey
H. Dorsal yellow line

Body length: 45–48 mm

Hindwing length: 29–30 mm





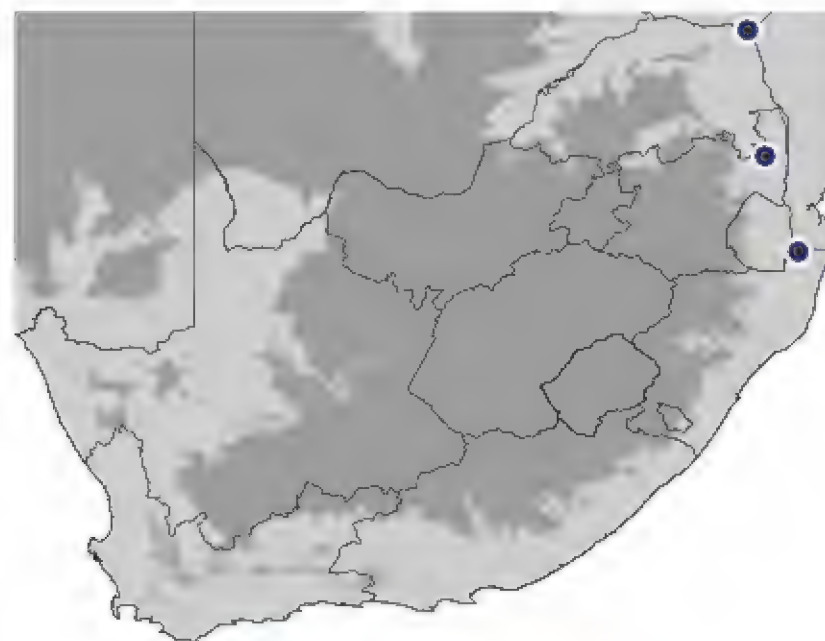
Zambezi Siphontail

Neurogomphus zambeziensis

Cammaerts, 2004

Appearance: The Zambezi Siphontail is fairly large, green and dark brown striped, with a narrowly foliated clubbed tail. Face brownish below, greenish above. Head black from above, back of head green. Eyes light bluish turquoise, slightly speckled, blending to light brown behind and below. Neck brown. Thorax yellowish green with fine black stripes. Wings slightly smoky. Pterostigmas short (3 mm), wide, dark brown. Abdomen mostly dark brown with narrow yellow rings, widest on segment 8. Segment 8 with small foliations with finely toothed margins. Segment 9 also with narrow foliations. Segment 10 constricted in first half, wider in second half. Hamules of secondary genitalia long and spike-like, pointing down and forwards. Female similar, although without foliations.

Field notes: The Zambezi Siphontail is highly localised, having only been recorded from northern KwaZulu-Natal and the Kruger National Park. Its range extends to North and Central Africa. It hangs from tall grass and low bushes, often many metres away from meandering rivers. It has a low, weak, fluttering flight, frequently settling to hang from vegetation. On the wing from December to April.

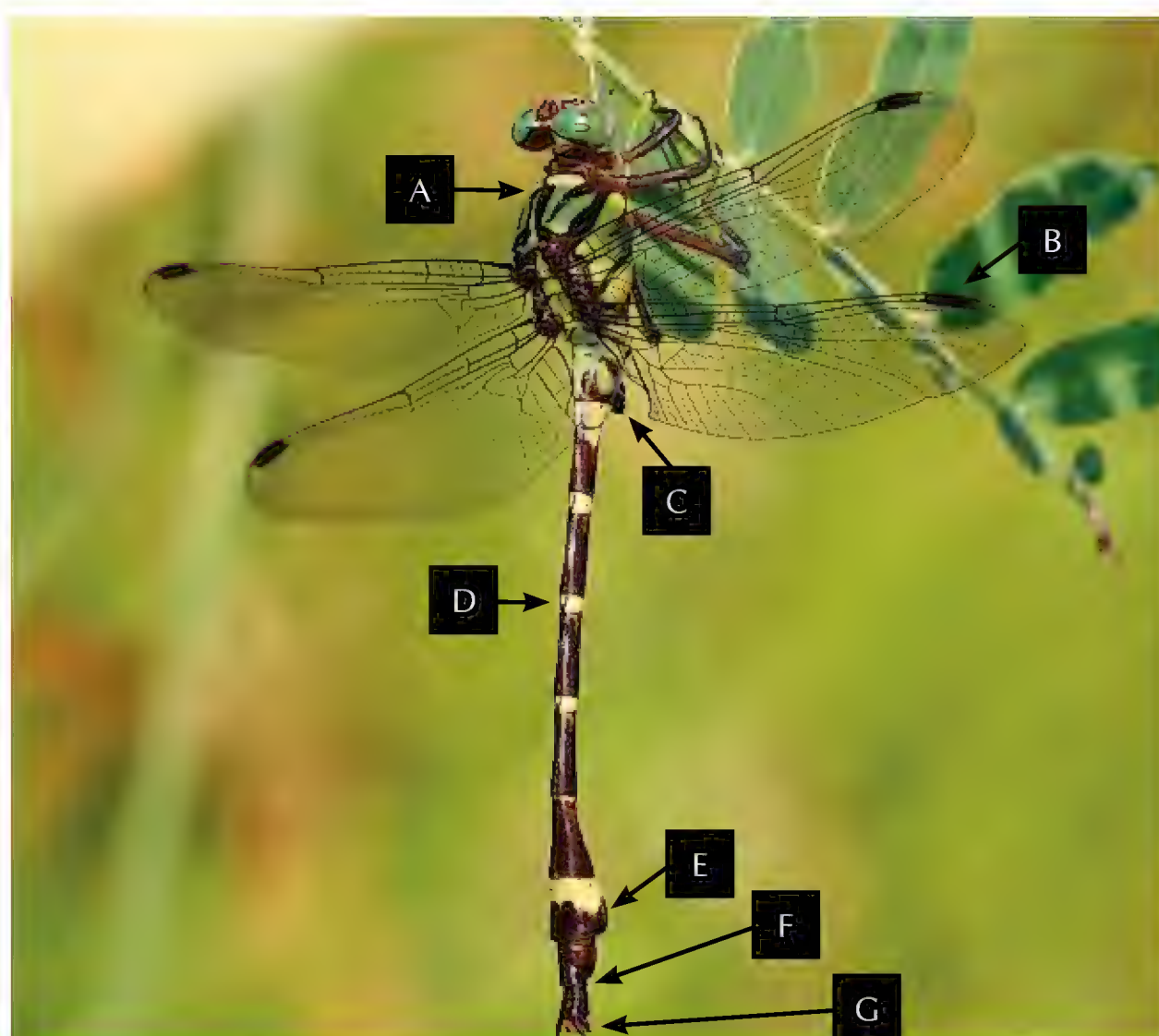
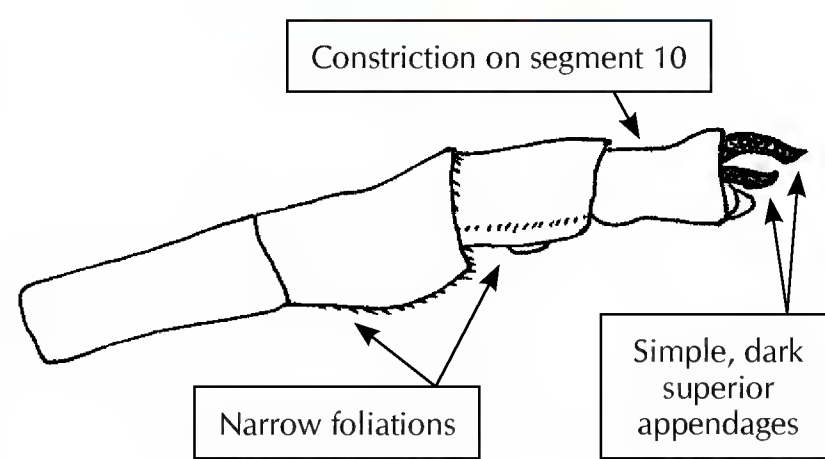


Threat

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DBI

6



- Hot savanna
- Dark species
- Only narrow foliations

- A. Narrow lines on thorax
- B. Short, wide pterostigmas
- C. Long, pointed hamules
- D. Narrow, yellow rings
- E. Only narrow foliations
- F. Constriction on segment 10
- G. Spine-like appendages

Body length: 45–48 mm

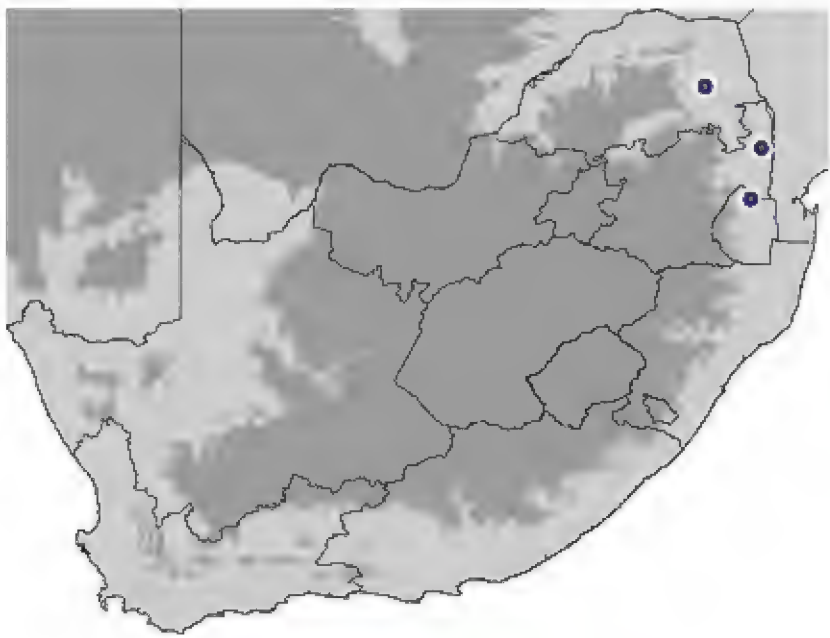
Hindwing length: 29–30 mm

Bold Leafait

Phyllogomphus selysi Schouteden, 1933

Appearance: The Bold Leafait is very large, black and bright yellow striped, with a narrow abdomen and huge black foliations. Face light greenish yellow with fine spots and lines. Head black with some yellow between the eyes from above. Eyes light turquoise with brownish hue. Neck mostly dark brown. Thorax with equally wide black and bright yellow stripes. Wings clear becoming smoky with age, inner hind margin of the hindwing very pointed. Pterostigmas moderately long (4.0–4.5 mm), black. Abdomen with bright yellow and black rings, very wide yellow ring on first two-thirds of segment 7. Foliations on segment 8 huge, black, overlapping part of segment 9. Superior appendages long and yellow becoming pointed and slightly upturned. Inferior appendages half the length of superior appendages, brown with hook at end. Hamules huge, black, triangular ending in sharp hooks. Female similar, pterostigmas longer (4.5–5.0 mm), narrower and browner, foliations on segment 8 huge but slightly smaller than in the male, abdomen stouter.

Field notes: The Bold Leafait is rare in South Africa, having only been recorded a few times in the northern region. It also occurs in Botswana, Zambia and Zimbabwe and is usually associated with meandering rivers in lowveld bushy sa-

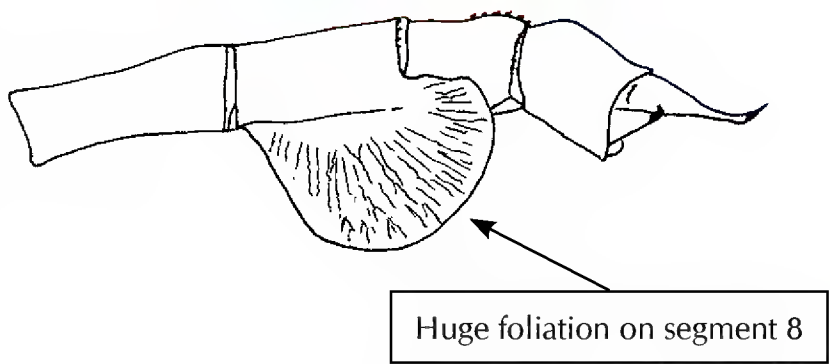


Threat

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4



vanna and forest. The adults are mostly in bush away from the water. It flies high and fast among bushes and trees, settling occasionally, but remaining alert. On the wing from November to April.

Male

Female

A. Black rings twice length of yellow rings

B. Large black foliations

C. Black and yellow stripes of similar width

Body length: 65–66 mm

Hindwing length: 38–39 mm



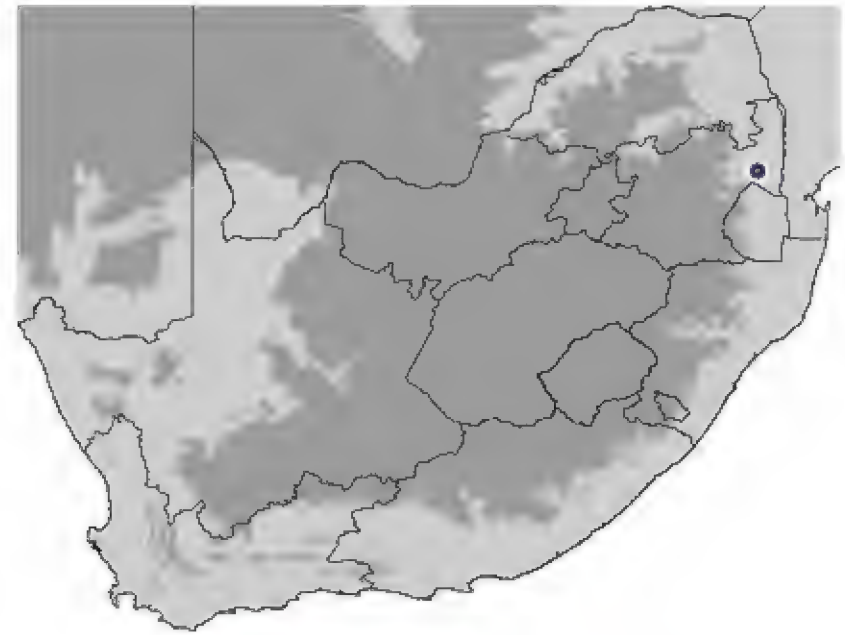


Horned Talontail

Crenigomphus cornutus Pinhey, 1956

Appearance: The Horned Talontail is fairly large and marked with dull yellow and brown stripes and has no foliations. Face and head above yellow with some traces of brown. Eyes greyish blue in front, light brown behind, with some indistinct dark horizontal stripes. Thorax yellow with faint brown stripes. Wings slightly smoky. Pterostigmas of medium length (3.5 mm), narrow, black. Abdomen long and narrow with dark brown narrow ring at each segmental joint, in side view each ring with a distinct dark brown dash running forwards on each of segments 3 to 7 on yellow, yellow background forming a line along sides of abdomen. Foliations absent. Segments 8 to 10 of similar length. Superior appendages solid, curved and rounded when viewed from above, straight in side view. Inferior appendages short, ending in small hooks. Female similar, stouter, pterostigmas slightly longer.

Field notes: The Horned Talontail has only been recorded in South Africa from the southern Kruger National Park. It also occurs in Botswana, Namibia, Zambia, Zimbabwe and Democratic Republic of Congo. Its habitat is fast savanna rivers and streams with grassy margins. It flies in grassland near flowing water, frequently settling on grass stems and other prominent vegetation. On the wing from December to April.



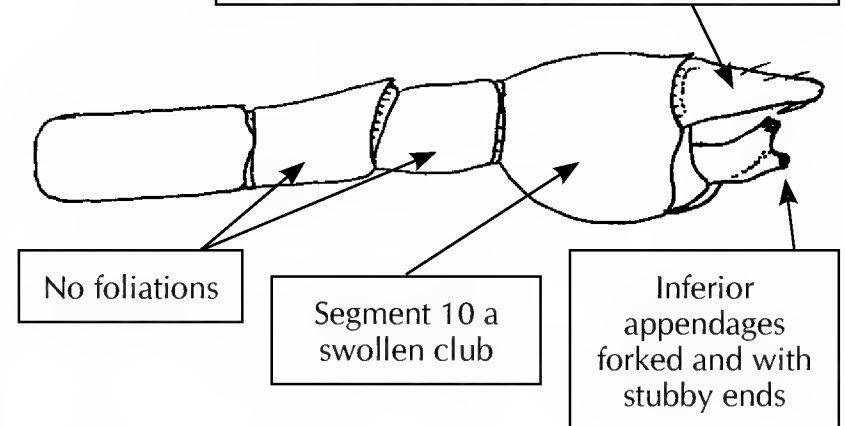
Threat

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DBI

5

Superior appendages straight in side view, curved inwards when viewed from above



- Fairly large
- Indistinctly dull yellow and fine brown stripes
- No foliations but segment 10 swollen into a club in the male
- Rests conspicuously on prominent vegetation

- A. Tiger-like stripes on thorax
B. Dashes along sides and top of abdomen

Note: to date only the female has ever been photographed, but male and female are very similar in patterning.

Female

Body length: 47 mm

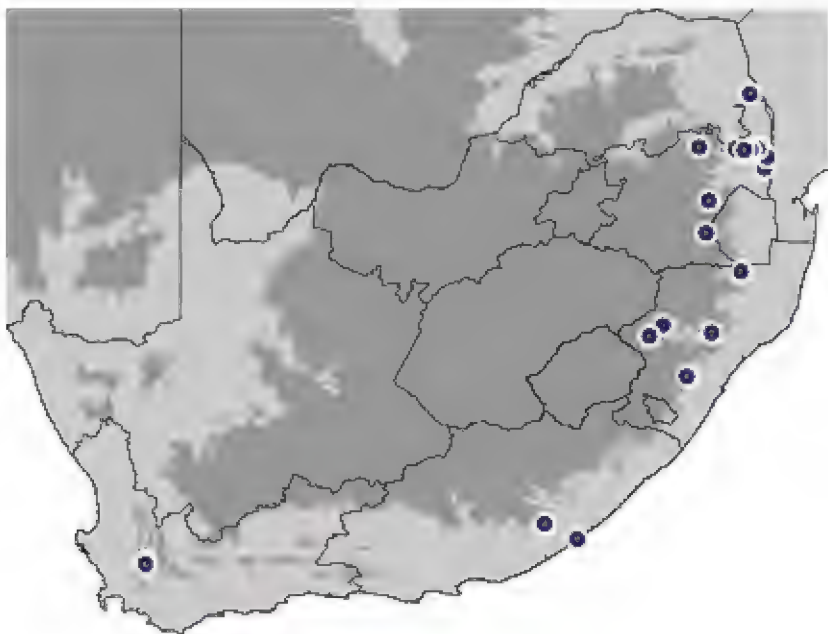
Hindwing length: 28 mm

Clubbed Talontail

Crenigomphus hartmanni (Förster, 1898)

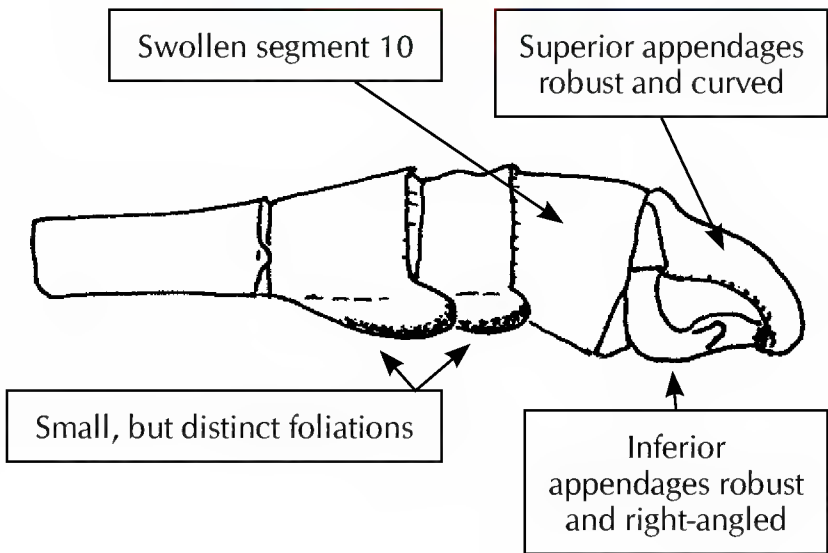
Appearance: The Clubbed Talontail is fairly large, dull yellowish green and brown striped, with a distinct club bearing two foliations on each side. Face greenish yellow with faint brownish markings, with brown bar across front of frons. Head brownish black above with yellowish green undulated ridge running across top of head, back of head brownish black. Eyes greyish turquoise above, light grey below. Neck brownish with greenish hind margin. Thorax yellowish green with narrow indistinct brown stripes. Wings slightly greenish smoky with distinctly yellow costa that mellows with age. Pterostigmas narrow, black, fairly long (4.0–4.5 mm), bordered in front by yellow vein. Abdomen with complex pattern of yellow, yellowish green and brown, with a fine sharply-defined brown patch at each segmental joint. Segment 7 mostly yellowish green with black dorsal patch in second half. Segments 8, 9 and especially segment 10 very swollen, yellowish, reddish brown and black. This swelling, combined with black-edged foliations on both segments 8 and 9, give the appearance of a pronounced club. Superior appendages yellowish brown, large, curved downwards with toothed round black tip. Inferior appendages fused, with two-pointed tip. Female similar, pterostigmas slightly longer (5 mm), abdomen noticeably more thickened, segments 8 and 9 brownish but not swollen, and each bears small black-edged foliations.

Field notes: The Clubbed Talontail is widely distributed but localised in the Western Cape, Eastern Cape, KwaZulu-Natal and Mpumalan-

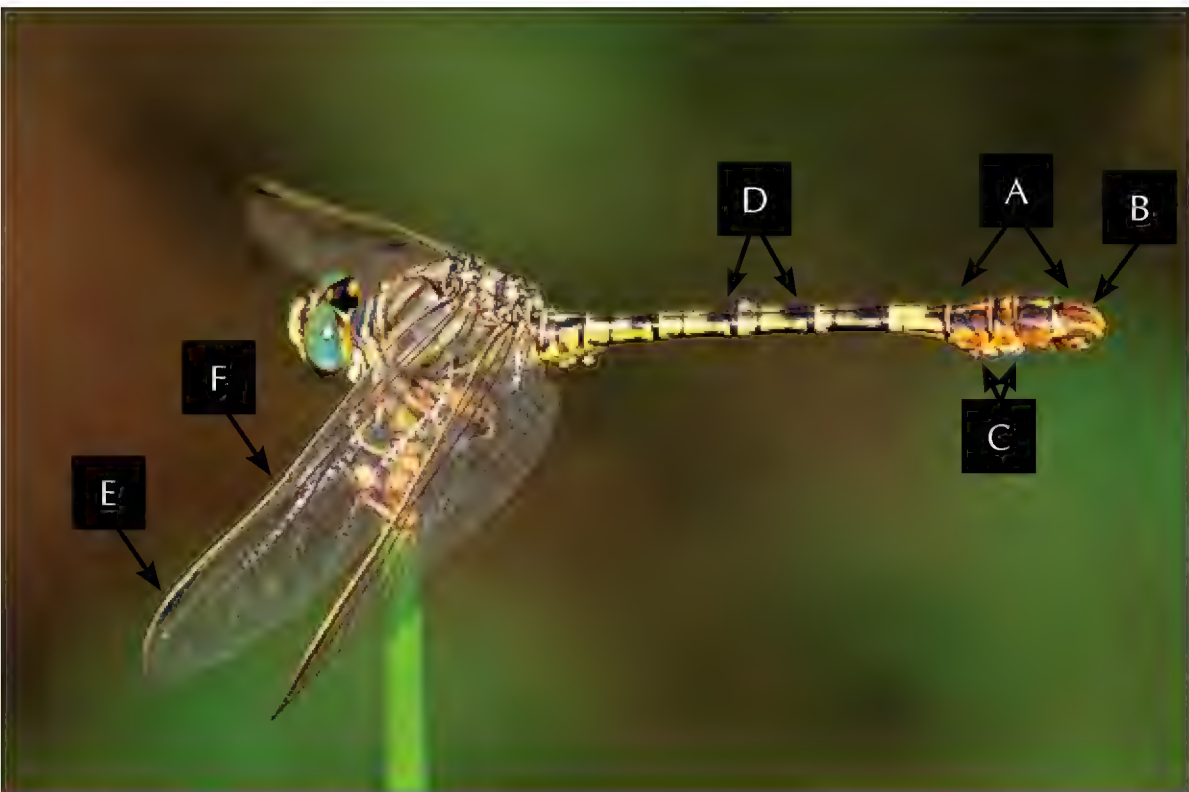


Threat
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3



ga. Its range extends to East Africa and it occurs in swift, open savanna streams and rivers with clumps of tall grasses. It perches conspicuously on the tops of tall grasses, sedges and low bushes, sometimes many metres from the river. Its flight is low over the tall grass. On the wing from November to June.



- Perches on top of stems
- Club made up of swollen segments and small foliations
- A. Club formed by swollen segments as well as foliations
- B. Strong, yellowish brown, curved superior appendages
- C. Small but distinct foliations
- D. Small, black dorsal patches
- E. Long pterostigmas
- F. Yellow leading edge

Body length: 45–46 mm

Hindwing length: 28–29 mm



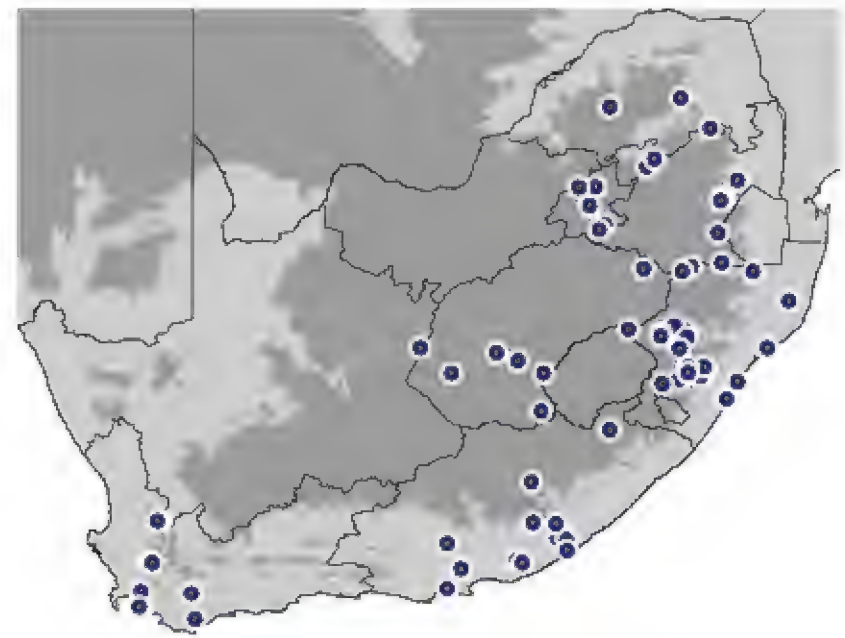


Common Thorntail

Ceratogomphus pictus Sélys, 1854

Appearance: The Common Thorntail is large, yellow, greenish yellow and brownish black, with a distinctive yellow costa and a narrow club formed mostly by large foliations on segment 8. Face yellow, labrum yellow with three black transverse lines. Clypeus light yellow. Frons greenish yellow with two black bands running across in front. Head black above with central yellow dot, back of head yellow with black margin. Eyes dark greyish blue above and light greyish blue below. Thorax with wide greenish yellow and grey stripes and narrow black lines. Wings clear, with faint greenish tint and prominent yellow costa. Pterostigmas of moderate length (4 mm), black. Abdomen with series of broken black and yellow rings. Segments 1 and 2 more greenish yellow. Segment 8 with large yellow foliations with narrow black margins. Segment 9 with very narrow straight yellow foliations. Segment 10 with sharp, forward-pointing spine on top that lies over and against segment 9. Appendages short, appear buckled. Superior appendages with small, sharp, downward-pointing hooks. Female similar, abdomen not as strongly marked, bearing much less blackish brown, no spine on segment 10.

Field notes: The Common Thorntail is common throughout much of South Africa up to about 1 200 m elevation, although absent from much of the Karoo and the Northern Cape. It occurs in association with open dams, pools, and rivers with pools. It is usually seen perching on bare patches of soil close to the water or on a small

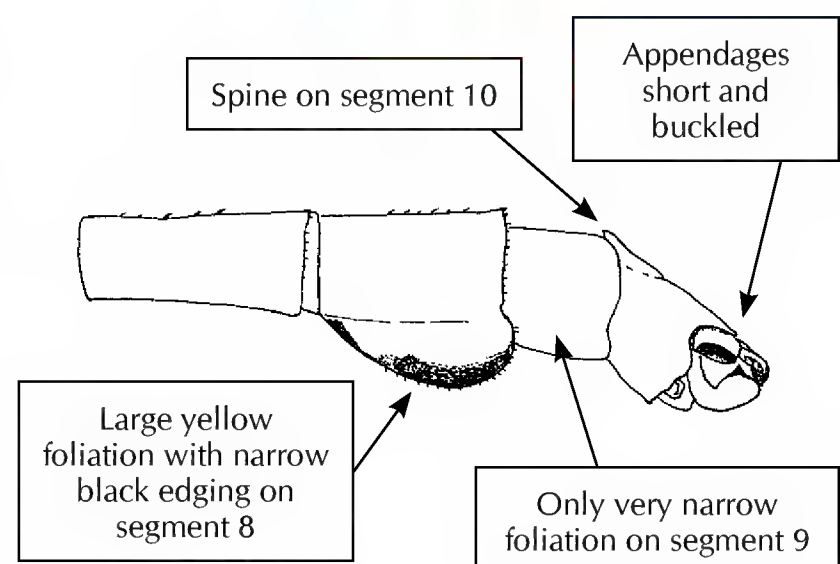


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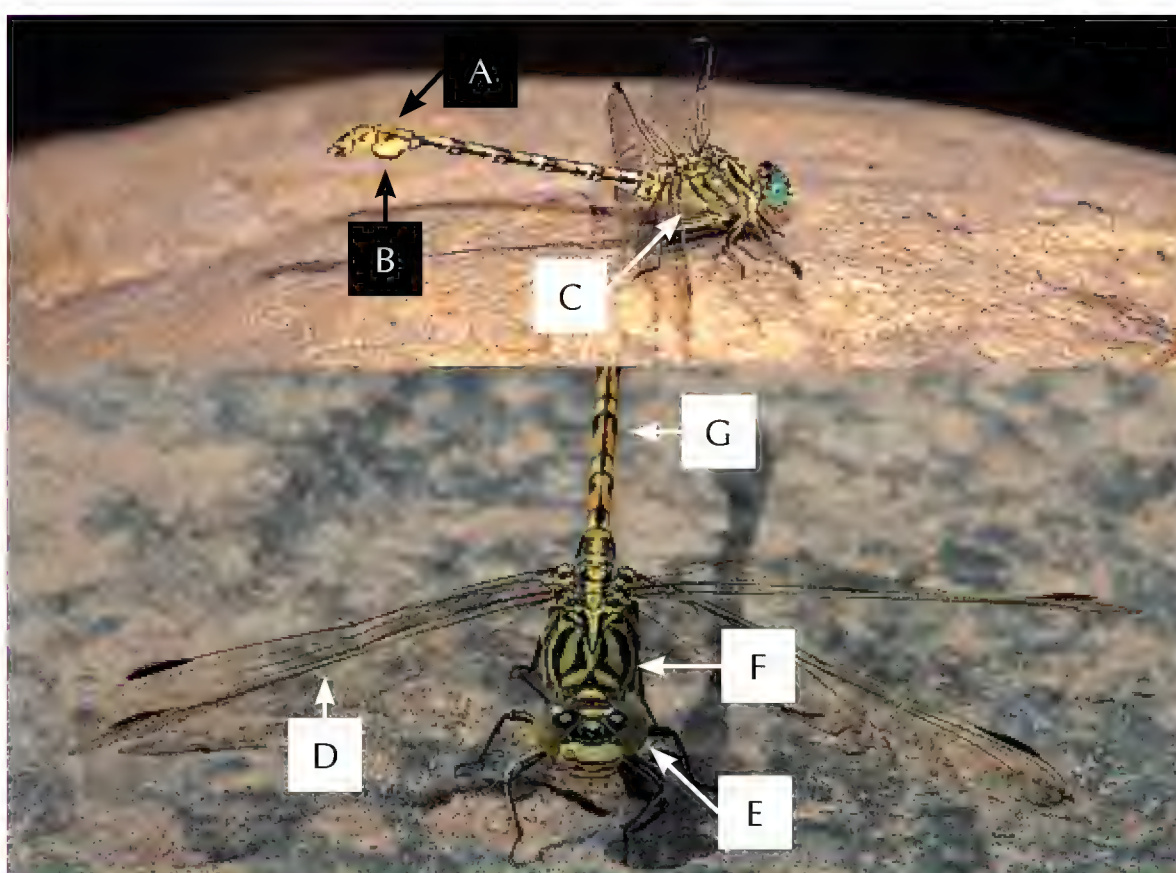
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boulder in the water. It darts off rapidly when disturbed. In the Western Cape, it is generally only seen perching on small boulders in streams and rivers. On the wing from November to April, but occasionally October and May.



- Perches on ground or boulder
- Slender and very yellow
- Large foliation only on segment 8
- Spine on segment 10

- A. Large foliations only on segment 8
- B. Large, yellow foliations with narrow black edging
- C. Grey side stripes
- D. Yellow leading edge to wing
- E. Eyes dark greyish blue
- F. Smooth, tiger-like stripes
- G. Slender abdomen

Body length: 53–54 mm

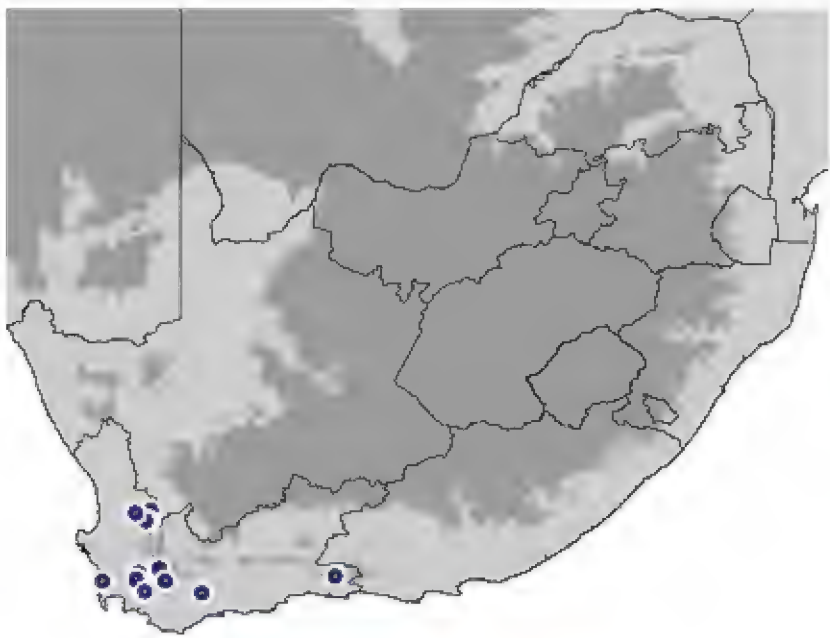
Hindwing length: 29–30 mm

Cape Thorntail

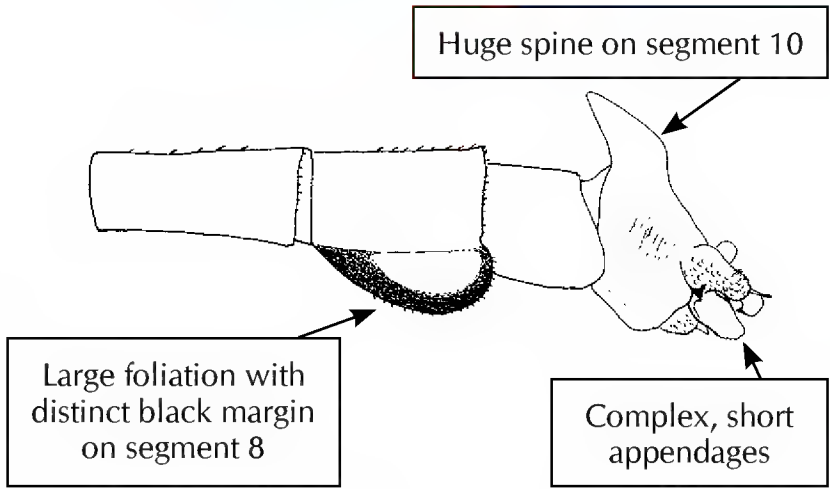
Ceratogomphus triceraticus Balinsky, 1963

Appearance: The Cape Thorntail is large, dark brown, with some deep yellow markings and large foliations on segment 8. Face dull yellow. Labrum yellow with central black line that joins two black spots. Anteclypeus greyish yellow. Postclypeus yellow, bordered above and below with two brownish black lines that run across and touch in the middle. Frons brownish yellow. Head black above, back of head brownish yellow. Eyes dark grey. Thorax with narrow deep yellow and wide brown stripes with pruinescence along sutures. Wings faintly greenish. Pterostigmas of medium length (4 mm), black. Abdomen alternately deep brown and deep yellow. Large foliations on segment 8 dull yellow in centre with wide blackish brown margin and some pruinescence. Segment 10 with large, robust, forward-pointing dorsal spine with dark brown tip. Superior appendages with wide, robust, outward-pointing spines. Female similar, brighter, foliations on segment 8 small.

Field notes: The Cape Thorntail is a highly localised and rare endemic in the Western Cape up to about 800 m elevation. It occurs along wide and shallow bush-lined and rocky streams and rivers. It perches on the ground, boulders, low twigs or bushes. It will also hawk up and down at chest height in open bush. The Cape Thorntail is ex-



Threat	DBI
NT	7



tremely sensitive to any approach. It is a powerful flier that appears very dark in the air. On the wing from November to April.



- Rare, endemic to Western Cape
- Overall dark brown appearance
- Large foliation only on segment 8 with distinct black border
- Huge forward-pointing spine on segment 10
- A. Large foliation with strong black border on segment 8
- B. Very few light markings on thorax
- C. Huge spine on segment 10
- D. Small dull yellow spots

Body length: 57–58 mm

Hindwing length: 32.5–33.0 mm



GOMPHIDAE (Clubtails)

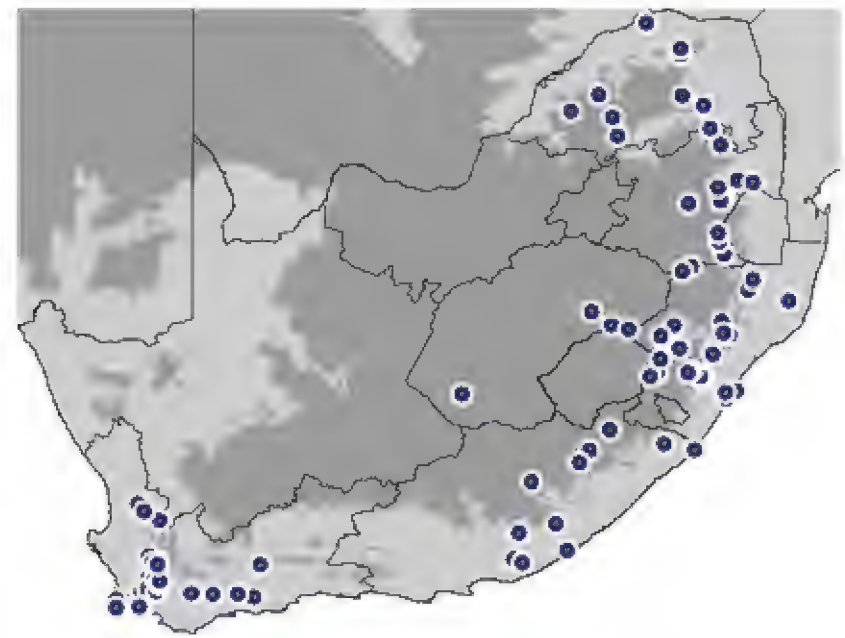


Rock Hooktail (Boulder Hooktail)

Paragomphus cognatus (Rambur, 1842)

Appearance: The Rock Hooktail is medium sized, dark brown and yellow with a reddish brown club. Face mostly all yellow. Labrum yellow with central brown spot and blackish brown basal line, which is strong in darker coloured Western Cape form. Clypeus yellow, Western Cape form may have two dark brown crescent-shaped markings on postclypeus. Frons yellow with diffuse brown band in front, which can be bold and distinct in Western Cape form. Head black with yellow spots above (all black in Western Cape form), back of head yellow. Eyes light greenish grey. Thorax bright yellow to greenish yellow with dark brown stripes, in Western Cape form the brown stripes in the lower region of thorax may be pruinose. Wings clear, sometimes slightly smoky in Western Cape form. Pterostigmas black, 3.75 mm long. Abdomen alternately black and yellow with large foliations on segments 8 and 9, foliations yellow with strong blackish brown margins. Superior appendages long and down-curved, with blackish brown tips. Inferior appendages curved and knobby, divergent at their tips when viewed from above. Female with similar head, thorax, body colour and patterning, wings smokier and can be highly smoky in Western Cape form, abdomen stouter, foliations very narrow.

Field notes: The Rock Hooktail is common throughout much of South Africa from sea level to 2 000 m elevation, although it is largely absent from the Northern Cape, Karoo and Tsitsikamma. Its range extends to East Africa. It occurs along

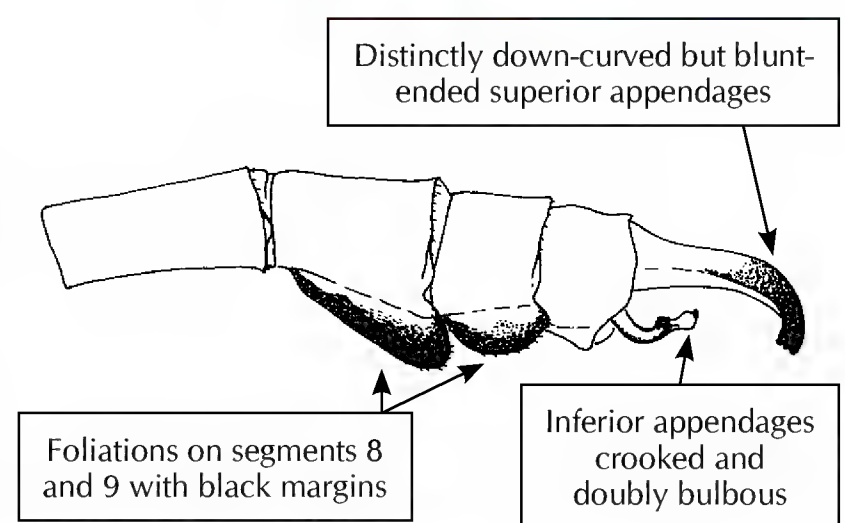


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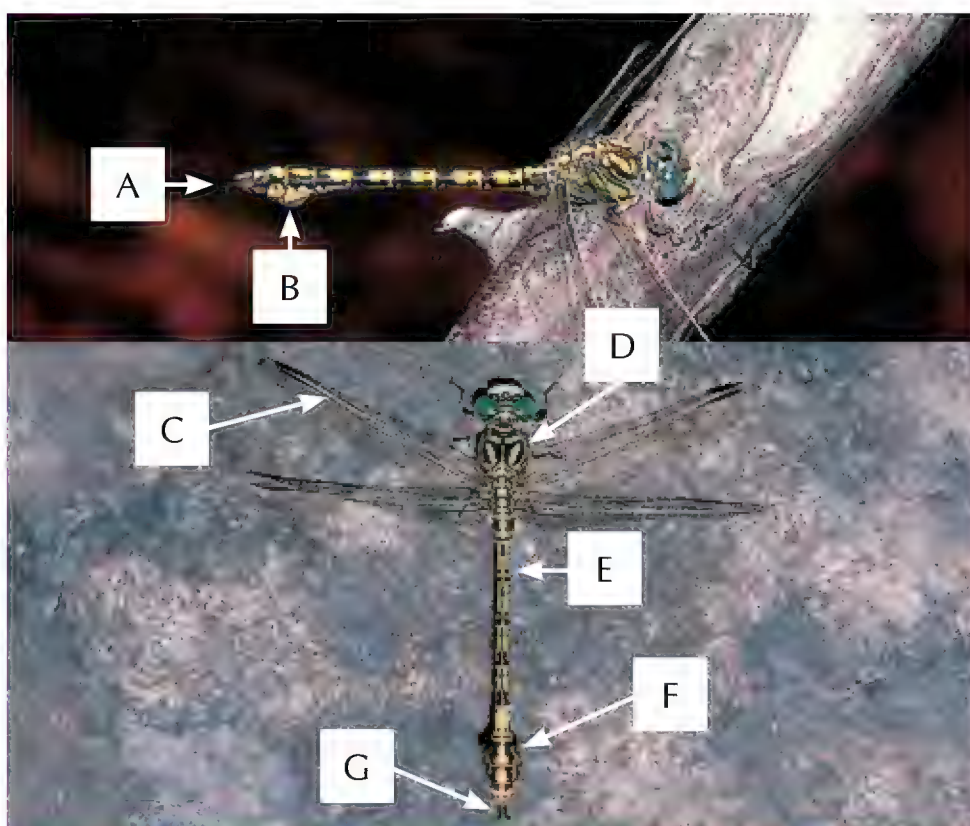
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streams and shallow, small rivers with boulders in grassland, bush or woodland. It only makes short flights, returning to a boulder midstream to perch in the sunshine where it moves around to find the optimal position, often raising its club off the rock surface. In the Western Cape, it may also bask on the gravel shore close to the river's edge.



- Dark brown/blackish and yellow, with brownish club
- Foliations on segments 8 and 9 with thin black edging
- Downward curved superior appendages with blunt tips
- Superior appendages divergent when viewed from above

- A. Superior appendages curve downwards
- B. Segments 8 and 9 with foliations and black margins
- C. Leading edge of all four wings with yellow veins
- D. Stripes on thorax yellow
- E. Pairs of spots
- F. Club brownish
- G. Divergent superior appendages

Body length: 41.5–44.0 mm

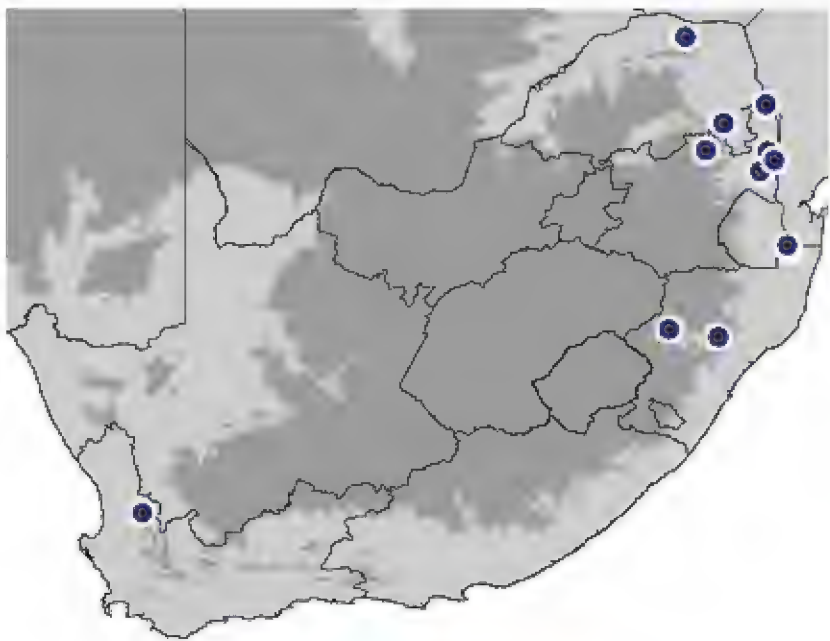
Hindwing length: 24.0–25.5 mm

Corkscrew Hooktail

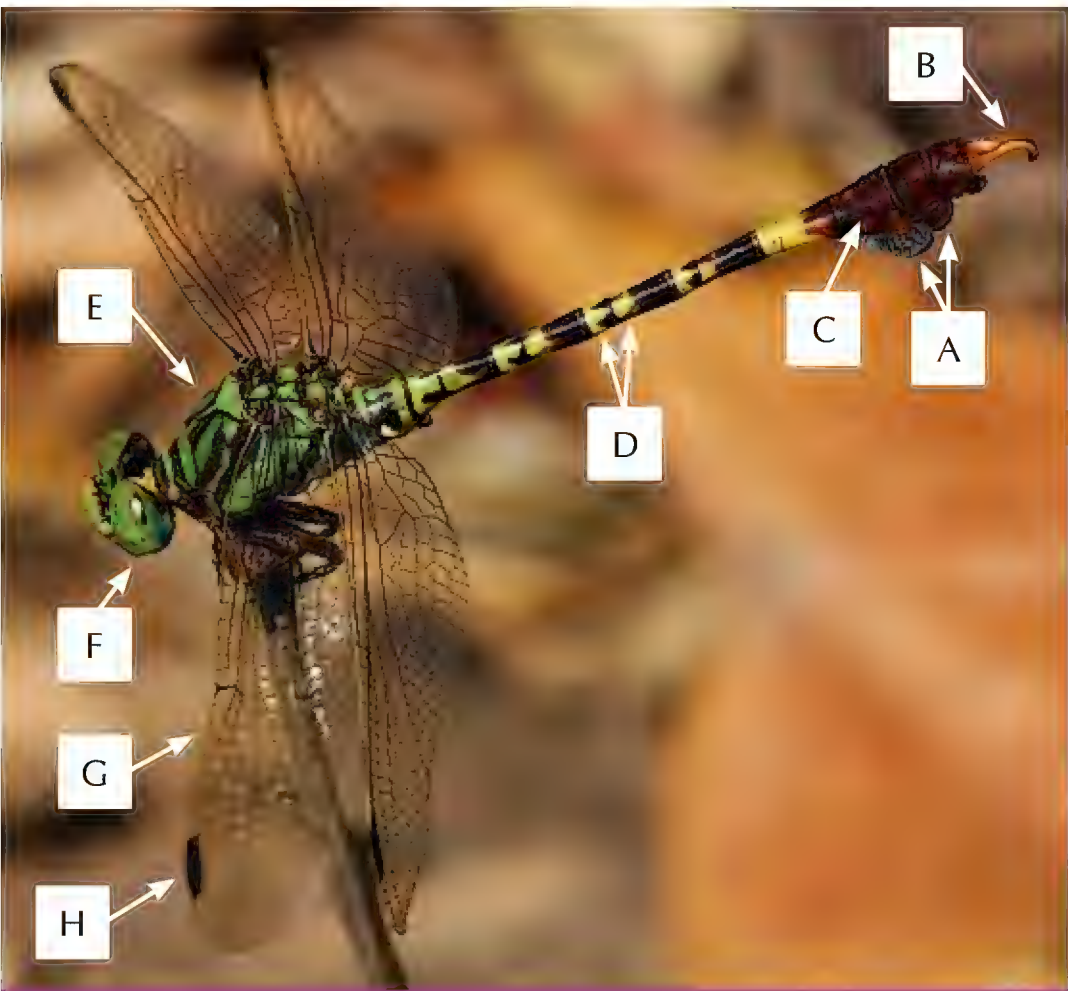
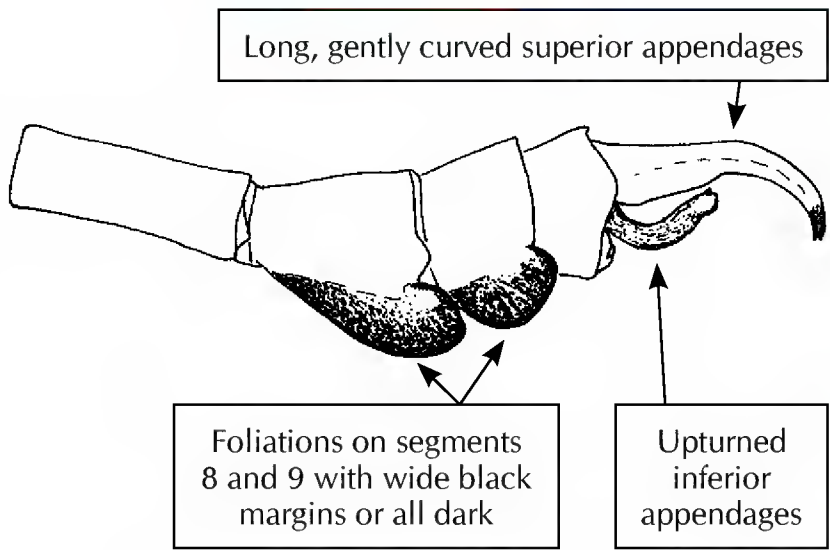
Paragomphus elpidius (Ris, 1921)

Appearance: The Corkscrew Hooktail is medium sized, greenish, yellowish and brown, with a reddish brown club. Face pale yellowish green with indistinct brown blotches. Labrum pale yellow with indistinct brownish band. Anteclypeus pale yellow. Postclypeus pale yellow with wide brown blotch in centre. Frons brown and yellow in front, pale yellow with minute black dots above. Head blotchy dark brown above, yellow at back. Eyes pale greyish blue. Thorax light green with distinct dark brown stripes. Wings clear. Pterostigmas dark brown to black, 3.5 mm long. Abdomen with black and yellow partial rings, segment 7 yellow in first half and brown in second half. Segments 8 to 10 mostly dark brown above with yellow blotching on sides. Large foliation on segment 8, small foliation on segment 9, both dark brown. Superior appendages long, end in distinct curved hook. Inferior appendages long, knobbly. Female similar, slightly smoky wings, thicker abdomen, very narrow foliations, markings are less distinctive.

Field notes: The Corkscrew Hooktail has been recorded in the Western Cape but most records come from KwaZulu-Natal, Mpumalanga and Limpopo Province. It extends to East Africa. It occurs in dry savanna river valleys with open fast rivers with wide rubbly banks. It is alert and camouflaged as it perches on twigs, low vegetation and boulders close to the river. On the wing from December to April.



Threat	DBI
LC	4



- Green thorax, yellow abdomen with dark brown markings and reddish brown club
- Yellow rings on abdomen in pairs
- Foliations on segments 8 and 9 with wide black margins or all dark
- A. Foliations on segments 8 and 9 with wide dark border or all dark
- B. Superior appendages parallel
- C. Brown club
- D. Paired yellow rings
- E. Green thorax with black markings
- F. Eyes pale greyish blue, with hint of green
- G. No or weak yellow leading edge
- H. Long, dark brown pterostigmas

Body length: 40 mm

Hindwing length: 25 mm



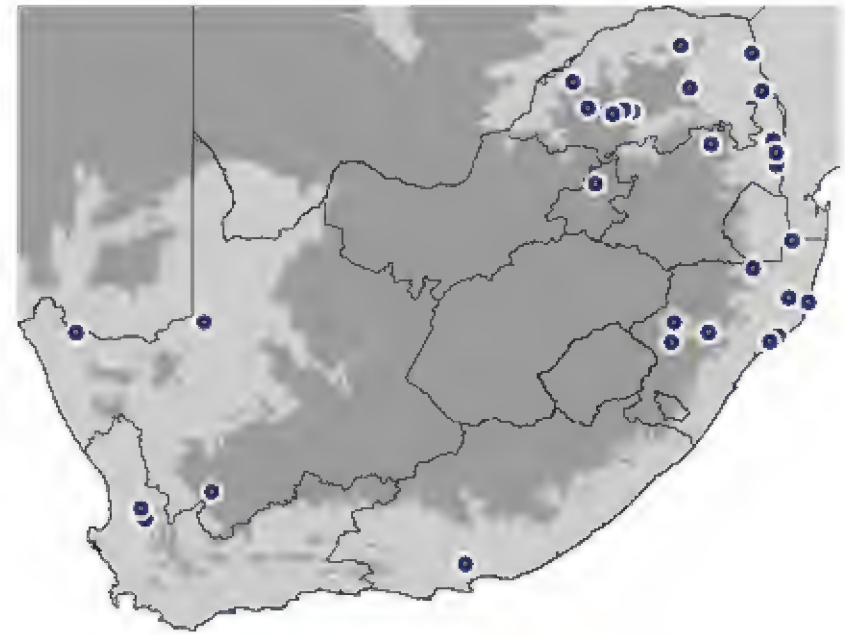


Common Hooktail (Green Hooktail)

Paragomphus genei (Sélys, 1841)

Appearance: The Common Hooktail is medium sized with a green head and thorax, and a yellow and dark brown abdomen with a reddish club. Face mostly light green. Labrum, anteclypeus, postclypeus and entire frons bright green with some brown smudging. Head brown with spots above, green at back. Eyes dark greenish brown. Thorax bright green with smudgy dark brown stripes. Pterostigmas black with central light brown stripes, 3 mm long. Wings clear to slightly greenish smoky. Segments 1 to 3 green, blackish brown and a little yellow. Segments 1 to 7 with yellow and blackish brown partial wings. First half of segment 7 bright chrome yellow, second half dark brown. Segments 8 to 10 dark brown with some faint yellow blotches, giving a reddish appearance. Segment 8 with large foliations, segment 9 with small foliations, dark brown with some faint yellow blotches giving a slightly reddish colour. Superior appendages conspicuously yellowish, fairly long, curved. Inferior appendages curved upwards, blackish. Female similar, body markings less distinctive, abdomen is much stouter, foliations virtually absent.

Field notes: The Common Hooktail has occasionally been recorded from the Western Cape and the Eastern Cape, but most of the records are from KwaZulu-Natal, Mpumalanga and Limpopo Province, below 800 m elevation. It occurs in Namibia and Swaziland and north to the Mediterranean and Arabian Peninsula. It occurs along moist, gravel

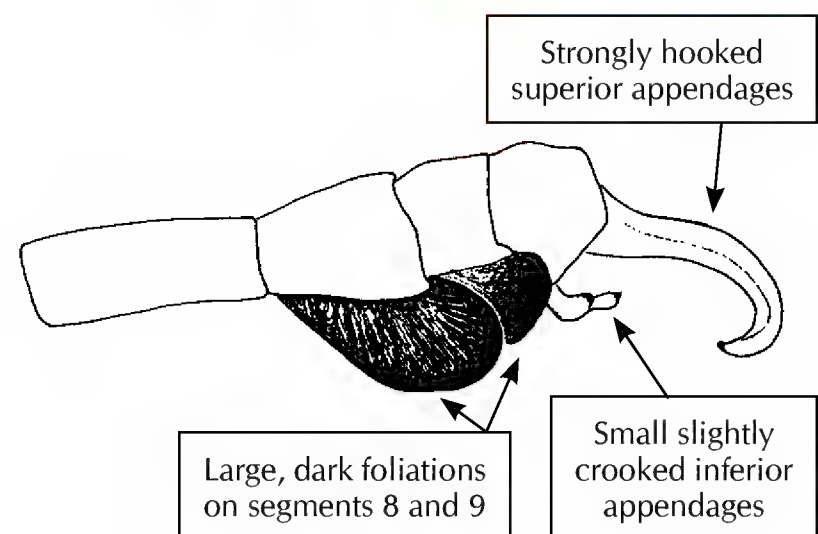


Threat

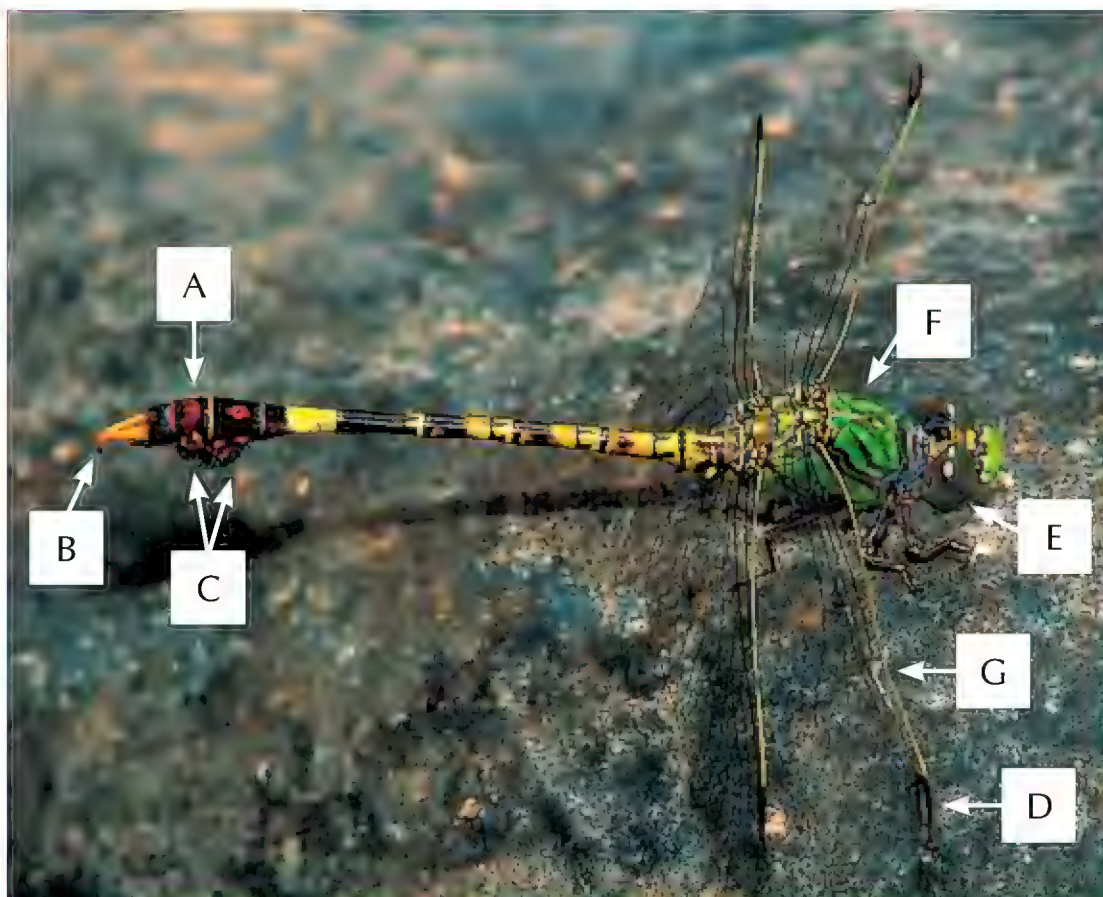
LC

DBI

3



or sandy shores of savanna rivers, occasionally on the exposed shores of pools and dams. It perches with its abdomen raised at a slight angle at the water's edge, darts off rapidly but returns again to the shore. On the wing from November to June.



- Bright green thorax with fairly indistinct brown stripes
- Brown club with large dark foliations on segments 8 and 9, distinctly hooked superior appendages
- Dark greenish brown eyes

- A. Brown club
- B. Hooked superior appendages
- C. Dark foliations on segments 8 and 9
- D. Pterostigmas with light central area
- E. Eyes dark greenish brown
- F. Bright green thorax with fairly indistinct brown stripes
- G. Yellow leading edge

Body length: 40.0–40.5 mm

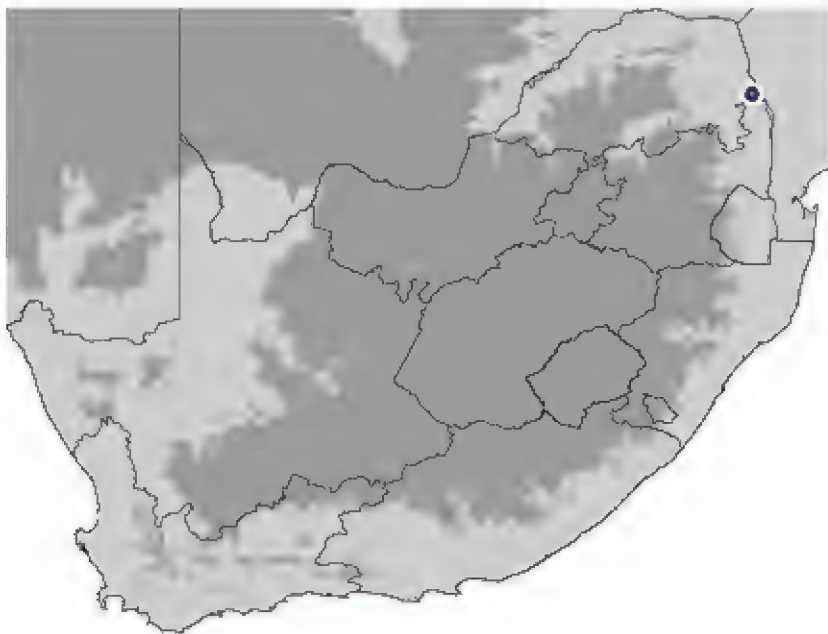
Hindwing length: 24–25 mm

Great Hooktail

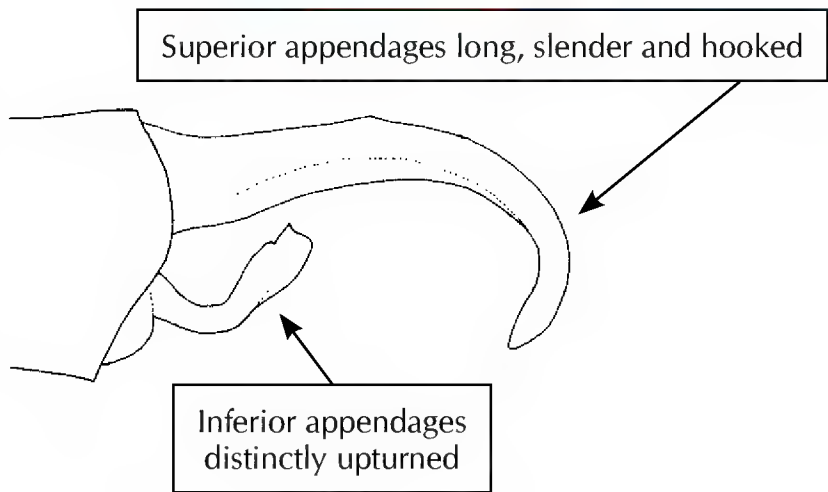
Paragomphus magnus Fraser, 1952

Appearance: The Great Hooktail is fairly large, blackish with a bright green thorax and a distinct yellow ring on segment 7. Face yellow with black moustache running across upper labrum. Eyes dull turquoise. Thorax bright green with sharply defined blackish brown stripes. Wings clear, leading veins black. Pterostigmas black, 4.2 mm long. Abdomen largely black, with large, light yellow areas on segment 3, and wide ring of light yellow on first half of segment 7. Segments 8 to 10 swell into a moderate club, foliations absent. Appendages noticeably yellow with blackish tips. Female similar in colour, stockier in overall appearance.

Field notes: The Great Hooktail occurs along lowland savanna streams and rivers. In 2012 it was recorded in South Africa for the first time in the Kruger National Park. Its range extends along the low elevation coastal plain to Kenya. Mostly seen perching on vegetation along running waters. To date it has been recorded as on the wing from December to March.



Threat	DBI
LC	4



- Lowland savanna species
 - Yellow face with fine moustache
 - Green and blackish striped abdomen
 - Largely black abdomen with distinct yellow ring on segment 7
 - Long, yellow appendages with blackish tips
- A. Blackish abdomen
B. Distinct yellow ring
C. Yellow appendages with blackish tips
D. Only a moderate club with no foliations
E. Bright green and blackish striped thorax
F. Yellow face with black moustache

Body length: 48 mm

Hindwing length: 32.5 m





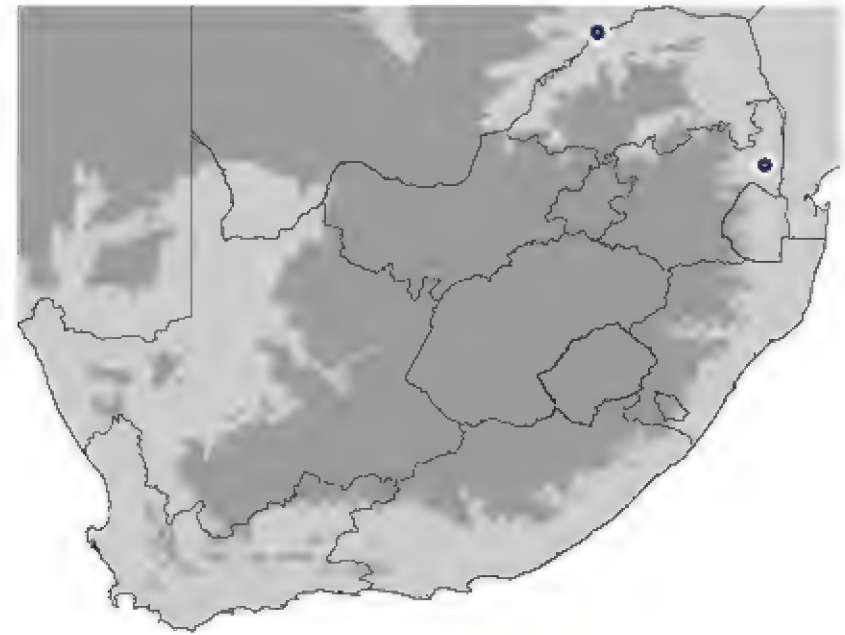
Flapper Hooktail

(Sabi Hooktail)

Paragomphus sabicus (Pinhey, 1950)

Appearance: The Flapper Hooktail is fairly large to large, black and yellow with a slight greenish hue, and a large dark club. Face mostly bright, light yellow. Top of nose and head black with a yellow bar between the eyes. Eyes green above, dark bluish grey below. Thorax strongly marked in black with slightly greenish yellow elongated spots and stripes. Pterostigmas black, 4 mm long. Wings with leading edges finely edged in yellow. Abdomen slender with sharply defined black and yellow alternate, ring-like markings. End of segment 7 and parts of segments 8 and 9 deep reddish brown. Large black foliations on segments 8 and 9. Tip of segment 10 yellow. Superior appendages long, gently curved, yellow with brown tips.

Field notes: The Flapper Hooktail has only been recorded in the northern provinces and its range extends through Namibia, Botswana and Zimbabwe to Kenya. It frequents large rivers with fast-moving stretches and an abundance of reeds. Perches on bushes or twigs in savanna, often away from water. On the wing from August to April.

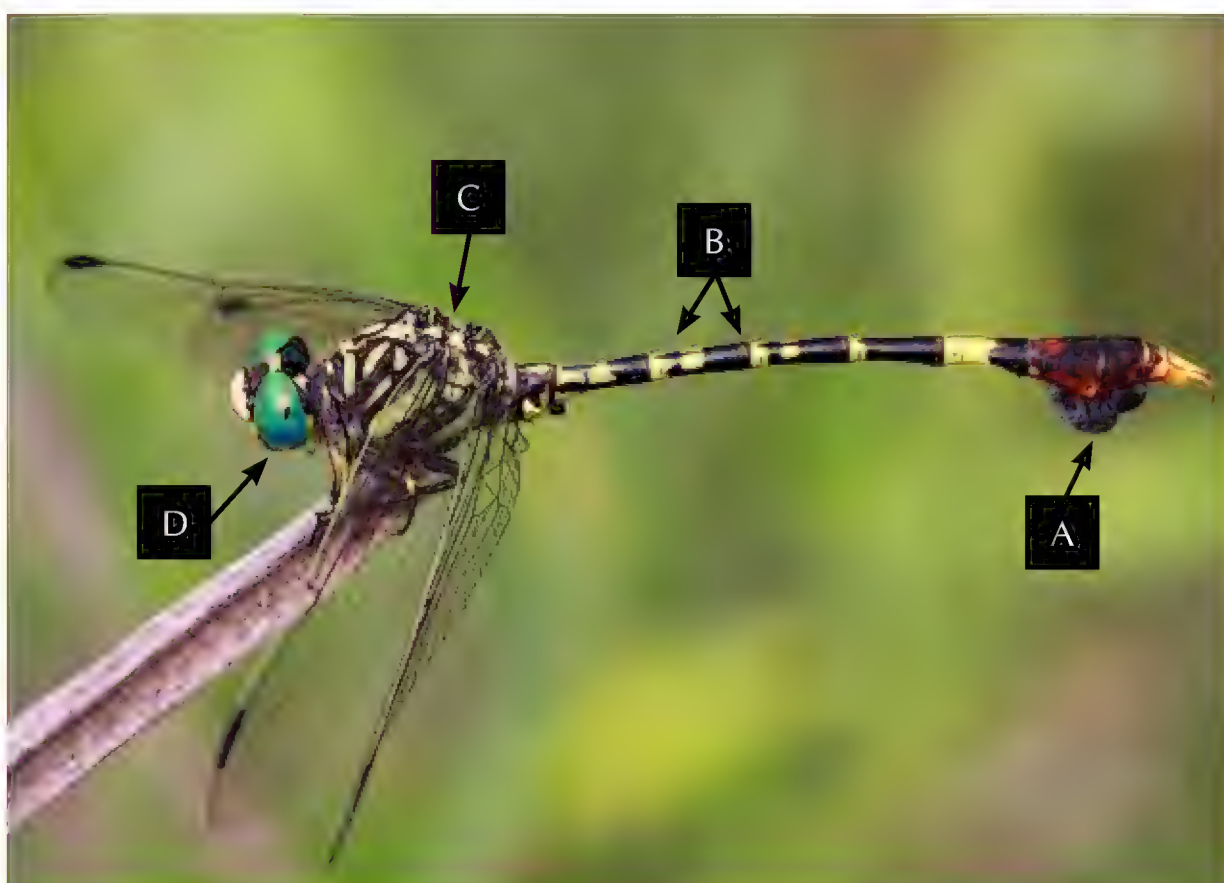
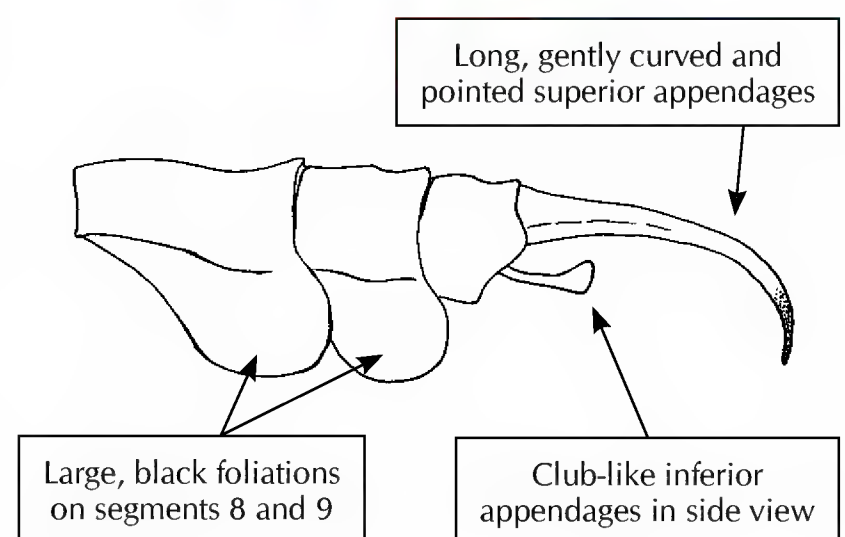


Threat

LC

DBI

4



- Distinctly black and yellow species
- Light blue eyes
- Large club with large foliations, especially on segment 8
- Long, gently curved superior appendages

- A. Large foliations, especially on segment 8
- B. Strong and distinct yellow and black markings
- C. Strongly marked yellow and black thorax
- D. Eyes light blue

Body length: 51–53 mm

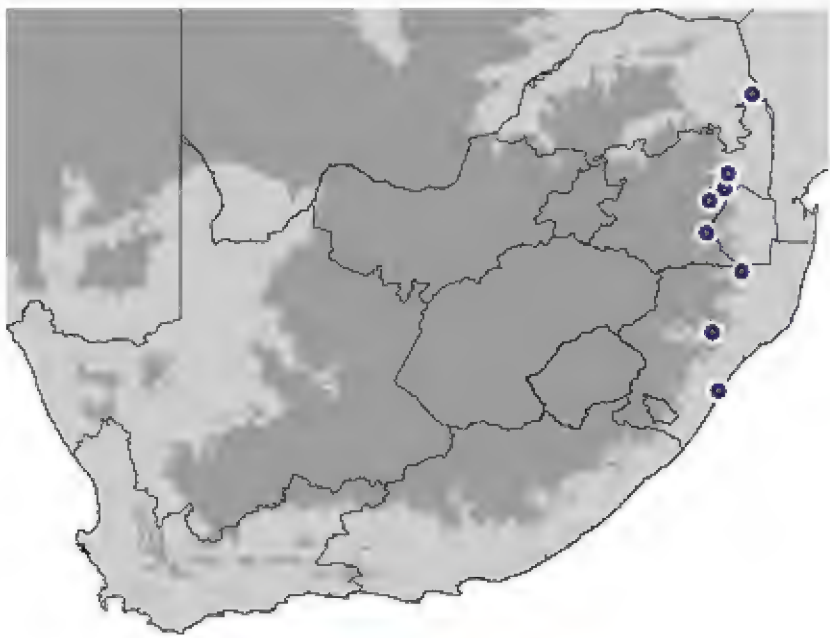
Hindwing length: 30–32 mm

Lined Claspertail (Gorge Claspertail)

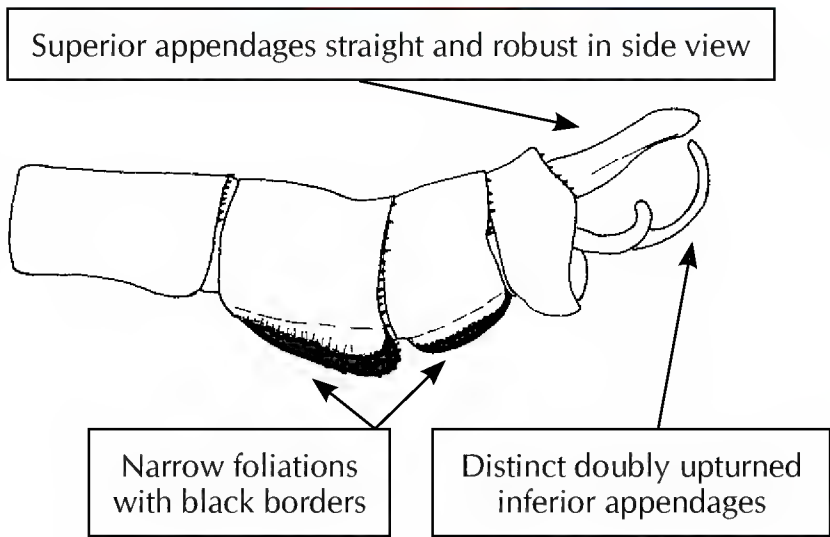
Onychogomphus supinus Sélys, 1854

Appearance: The Lined Claspertail is fairly large, pale bluish green, yellowish green and dark brown with a narrow reddish brown club. Face all pale greyish yellow to green. Upper surface of frons yellowish with strong black basal band. Head dark brown above, yellow at the back. Eyes light blue above, whitish below. Thorax slightly bluish pale yellow above, pale yellowish green at sides with blackish lines. Wings clear, costa bright yellow, some veins brown while others are black. Pterostigmas fairly short (3.5 mm long), yellowish brown with thick black veins. Abdomen with blackish brown and yellow partial rings, becoming greenish at sides. Segments 8 to 10 dark brown, last two thirds of segment 10 yellow. Segments 8 and 9 very swollen, bearing very narrow foliations that are yellow basally with black margin. Superior appendages very long, straight, stout. Inferior appendages very fine, upwardly curved with two fine prongs when viewed from side. Female very similar, stouter, with less yellow and dark body markings, wings more smoky especially in the basal area.

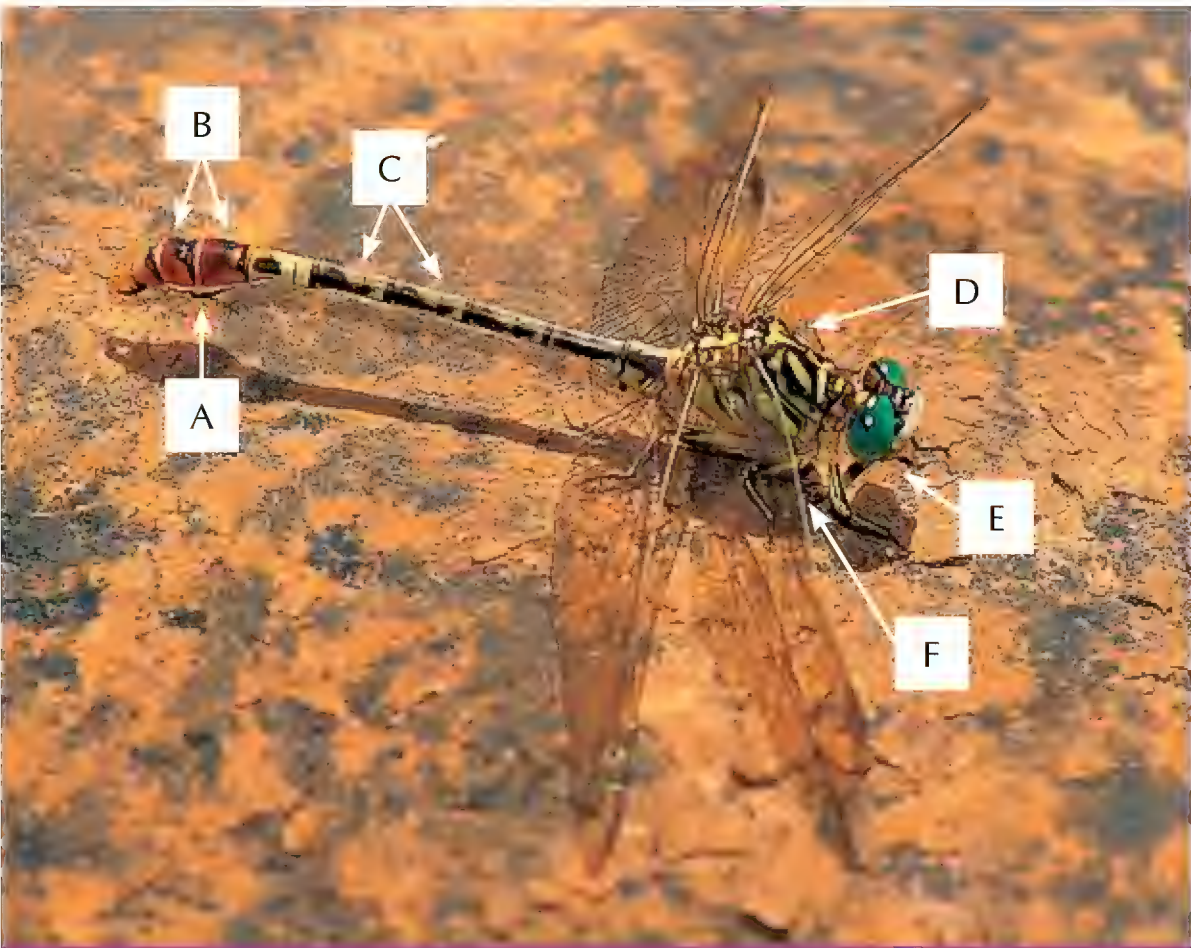
Field notes: The Lined Claspertail is highly localised in KwaZulu-Natal, Mpumalanga and possibly Limpopo Province. It also occurs in Angola and Zimbabwe and it inhabits rocky streams and shallow fast rivers strewn with large boulders in gorges in bushy or wooded montane savanna



Threat	DBI
LC	5



areas, 500 to 1 100 m elevation. It perches on boulders in the rivers and on grass stems on the bushy banks. The female is very rarely seen. On the wing from November to May.



- All yellow and black with a brown club, mostly composed of large segments
 - Narrow foliations on segments 8 and 9
 - Strong yellow leading edge to wings
 - Eyes light blue
- A. Only narrow foliations with black margins
B. Brown segments
C. Segments mostly yellow above
D. Strongly marked yellow and black thorax
E. Eyes light blue
F. Bright yellow leading edge

Body length: 45 mm

Hindwing length: 27.0–27.5 mm

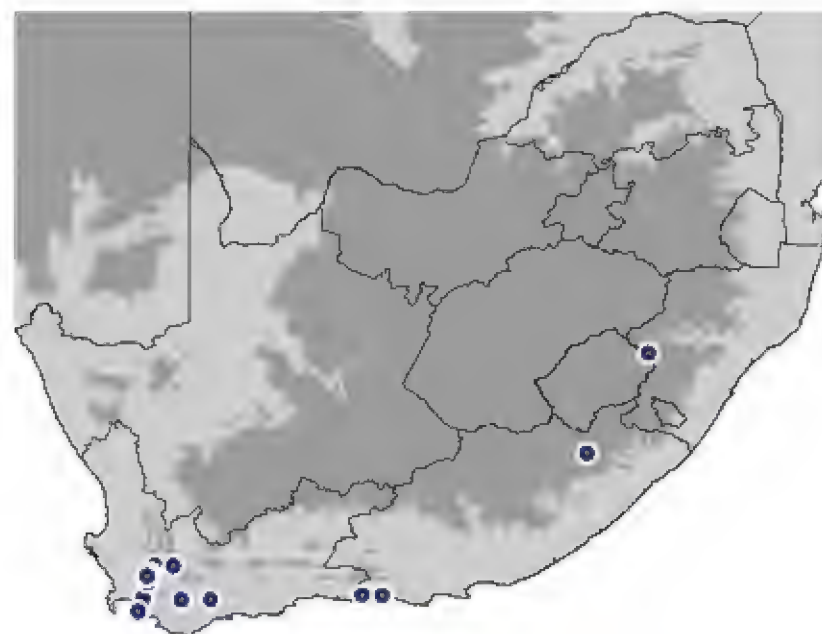


Yellow Presba

Syncordulia gracilis (Burmeister, 1839)

Appearance: The Yellow Presba is medium sized to fairly large, slender dark brown, with a yellowish stripe running along the top of the abdomen. Face blotchy brown, yellow in Eastern Cape individuals. Labrum dull yellow, sunflower yellow in Eastern Cape individuals. Top of head rounded, heavily pitted, shiny black. Eyes dark grey, light grey in Eastern Cape individuals. Thorax dark brown with two narrow (wide in Eastern Cape individuals) diagonal dull yellow (bright yellow in Eastern Cape individuals) bars bordered by black; in Eastern Cape individuals the black area immediately behind the first bar is highly metallic with a blue tinge, far less so in Western Cape individuals; yellow markings along midline on top of thorax; densely covered with long pale hairs. Legs black, Eastern Cape individuals with basal half of femur dark yellow. Wings smoky, tend to become clear in fully mature individuals. Membranules light grey. Pterostigmas dull black, 3 mm long in Western Cape individuals, 2.7–2.8 mm long in Eastern Cape individuals. Abdomen slender from above, dark brown with broken yellowish brown line running its length, this line can be very yellow in Eastern Cape individuals. Appendages long and jet black. Female very similar to male in both geographical areas, abdomen stouter, wings with more extensive amber, young Western Cape females with very smoky wings.

Field notes: The Yellow Presba is a very rare and localised species. Most of the records come from the Western Cape at elevations of 30 to 500 m. It has also been recorded in the Prentjiesberg in the Eastern Cape at 1 300 to 1 400 m elevation. There is also an old record from Cathkin in the KwaZulu-Natal Drakensberg, but it has not been recorded there in recent years. Its habitat is shallow montane streams and small rivers with a strong flow

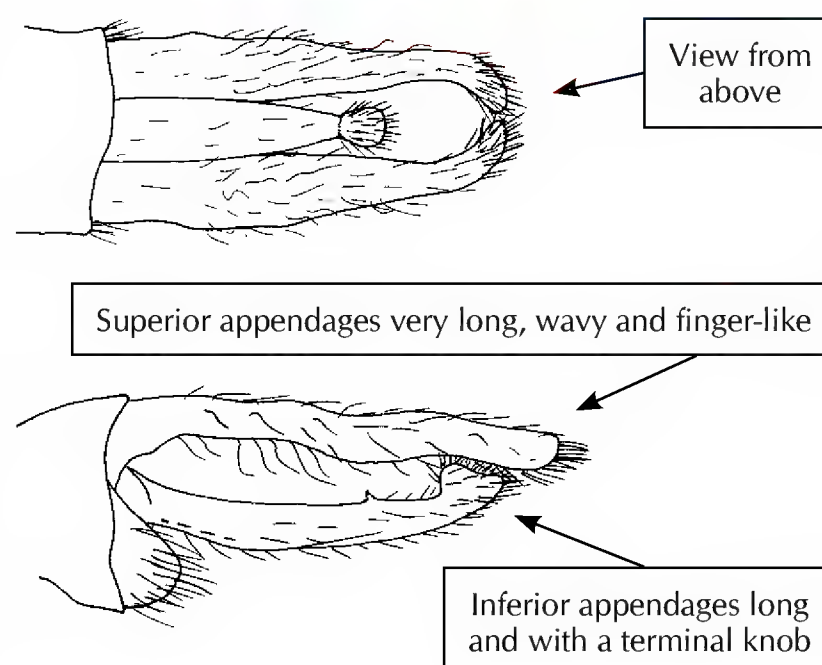


Threat

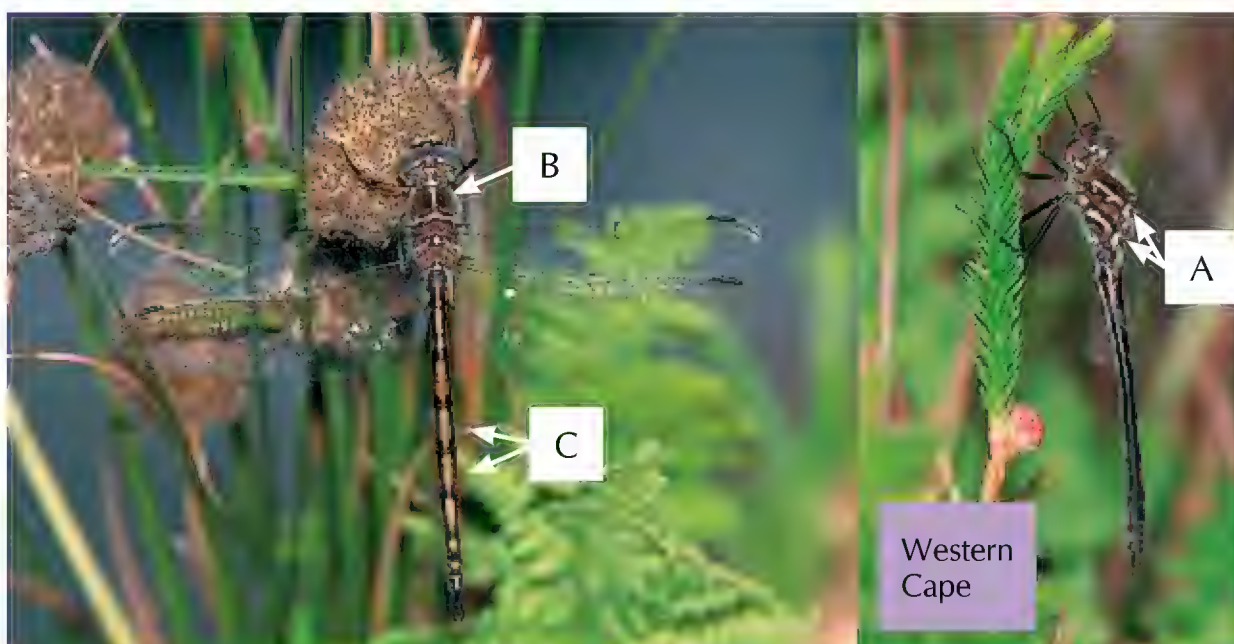
VU

DBI

6



over a bed of flat rocks in wide open valleys, with fynbos or grassy banks. It is rarely over water, normally flying in fynbos or over low bushy vegetation, often several hundred metres from the water. It rests in thick vegetation, sometimes on the underside of branches where it is highly camouflaged.



- Fine build
- All dark brown and yellow
- Two fine side stripes

- A. Two narrow dull yellow stripes
B. Fine, narrow line on top of thorax
C. Elongated yellow spots forming a line along the top of the abdomen

Body length: 51–53 mm

Hindwing length: 30–32 mm

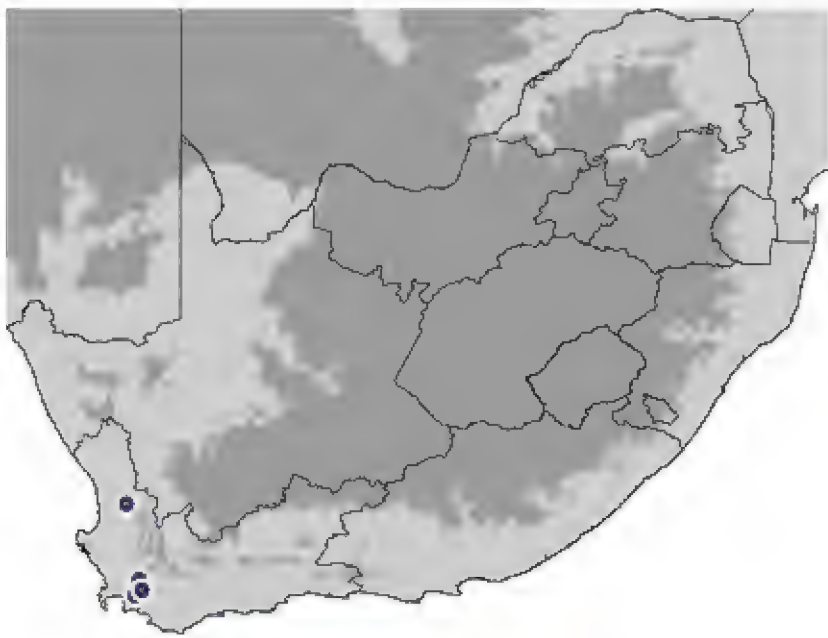


Gilded Presba

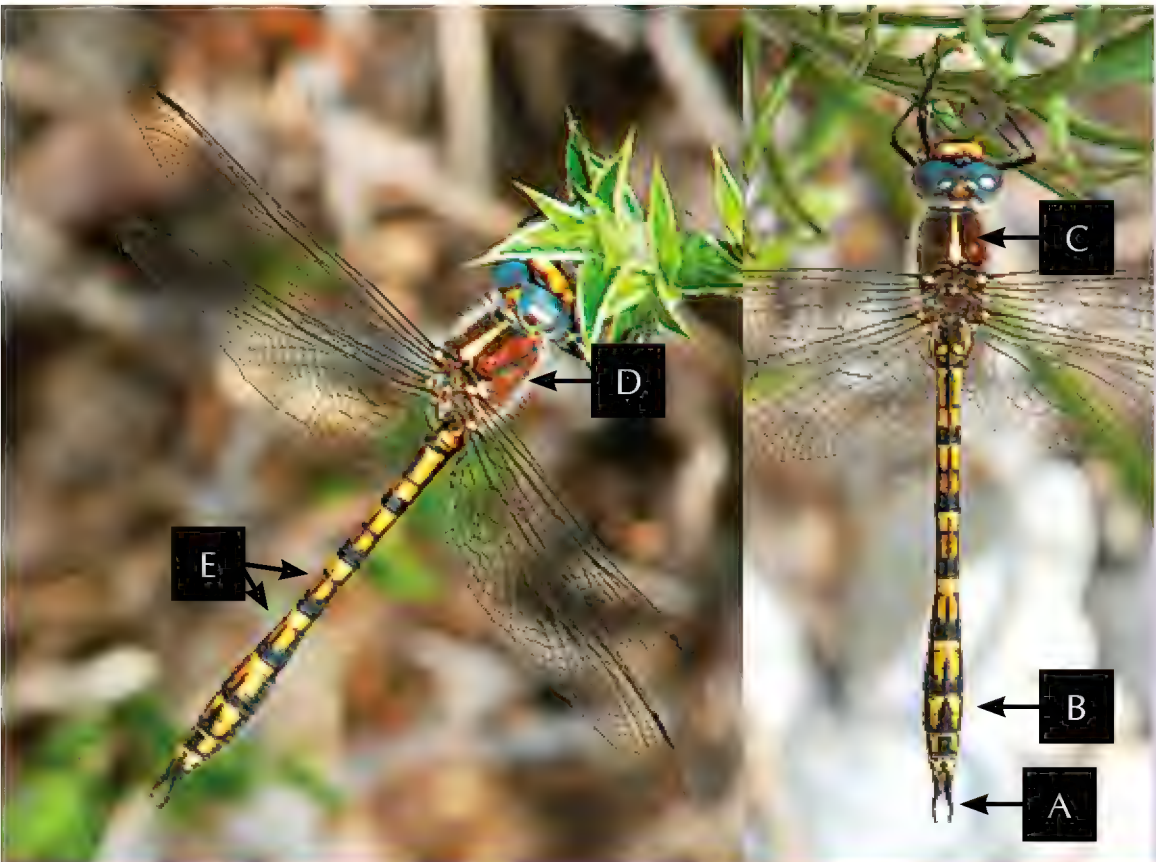
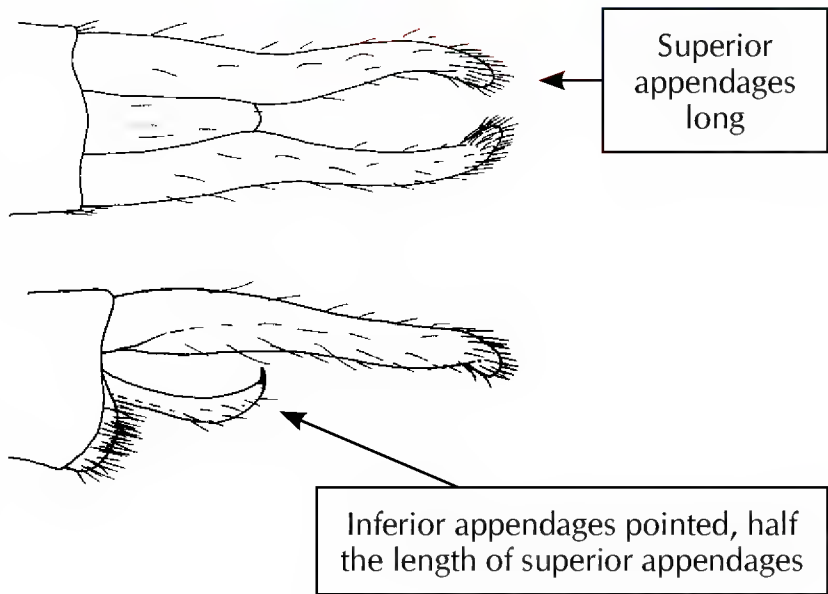
Syncordulia legator Dijkstra, Samways & Simaika, 2007

Appearance: The Gilded Presba is fairly large to large, slender, dark brown and straw yellow. Face brownish yellow. Labrum with darker base. Head brownish yellow above with dense black hairs. Eyes light grey with slight grey mottling. Thorax glossy dark brown with some brown lines on sides, distinctive bright yellow line runs along top up to wing bases. Yellow dot present at base of each wing, particularly conspicuous in forewings. Wings clear, becoming smoky at tips. Membranules light grey, slightly darker on outside border. Pterostigmas black, 3 mm long. Abdomen slightly and gradually clubbed, dark blackish brown with symmetrical mosaic of light yellow, hornlike patches along its entire length, except for segment 10. Segment 10 with yellowish hind margin. Appendages very long, very slender. Inferior appendages curving upwards to a sharp point. Female similar, abdomen much stouter, eyes much browner, wings distinctly smoky especially leading edges and tips.

Field notes: The Gilded Presba is a very rare and localised Western Cape endemic with a few scattered records from Clanwilliam, Du Toits Kloof, Palmiet River, Jonkershoek and Franschoek, between 350 and 800 m elevation. Its habitat is swift rocky montane rivers lined with bushy fynbos. It rests close to the ground but is highly camouflaged at maturity. When it leaves the water's edge on emergence, it flies powerfully across fynbos-covered slopes. On the wing from mid-September to early January.



Threat	DBI
VU	8



- Elegant shape in dark brown and yellow
 - Thorax with weak side stripes
 - Thorax with bright yellow widening stripe on top
 - Hoof-like yellow markings on abdomen
- A. Long, fork-like superior appendages
B. Abdomen with gently curving club
C. Strong, bright yellow, widening stripe on thorax
D. Weak side stripes
E. Yellow, hoof-like markings

Body length: 49–50 mm

Hindwing length: 28 mm



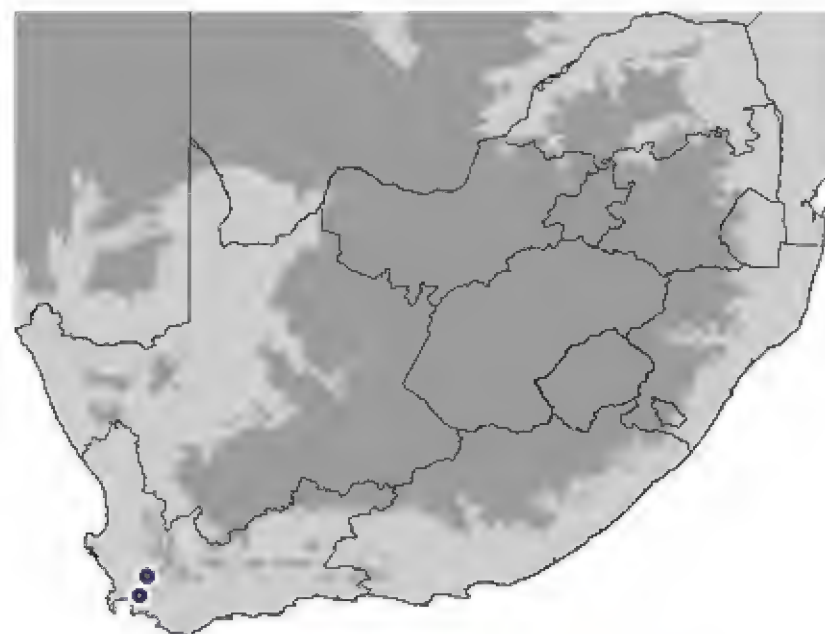


Rustic Presba

Syncordulia serendipator Dijkstra, Samways & Simaika, 2007

Appearance: The Rustic Presba is large, stout, dark brown and spotted yellow. Face all yellowish brown. Eyes dark grey with brownish hue. Thorax glossy, almost entirely brownish black with some paler areas and spots, fine yellow line runs along top up to wing bases, covered with long whitish hairs. Wings clear with black venation, slightly smoky at bases. Pterostigmas black, 2.9 mm long. Abdomen stout, very dark blackish brown with paired light orange and squarish spots at end of all but the last two segments. Segment 9 virtually all black, segment 10 with central square yellowish spot. Appendages very robust, dark brown. Female similar, overall more robust, pale markings slightly larger, eyes browner, wings slightly darker with yellowish bases.

Field notes: The Rustic Presba is very scarce, with only a few scattered records from the Western Cape mountains, including Riebeeck Kasteel, Bainskloof and Jonkershoek, above 350 m elevation. It occurs along rivers where there are massive boulders and open pools with open canopies. It is a very powerful flier, hawking swiftly over pools, leaving abruptly to fly across montane slopes. It even flies up to mountain peaks.

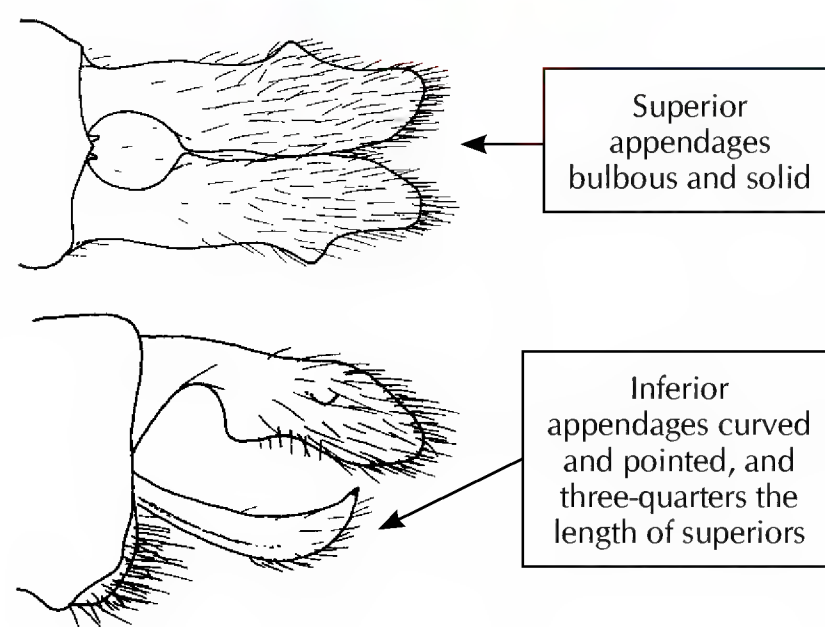


Threat

VU

DBI

8



- Robust build
- Overall dark brown and small amounts of dull yellow
- Thorax marked with dark and light brown stripes
- Small, dull yellow, hoof-like markings on abdomen
- Stubby superior appendages

- A. Thorax indistinctly striped dark and light brown
- B. Stubby superior appendages visible in field
- C. Long, whitish hairs
- D. Small, dull yellow, hoof-like markings

Body length: 52–54 mm

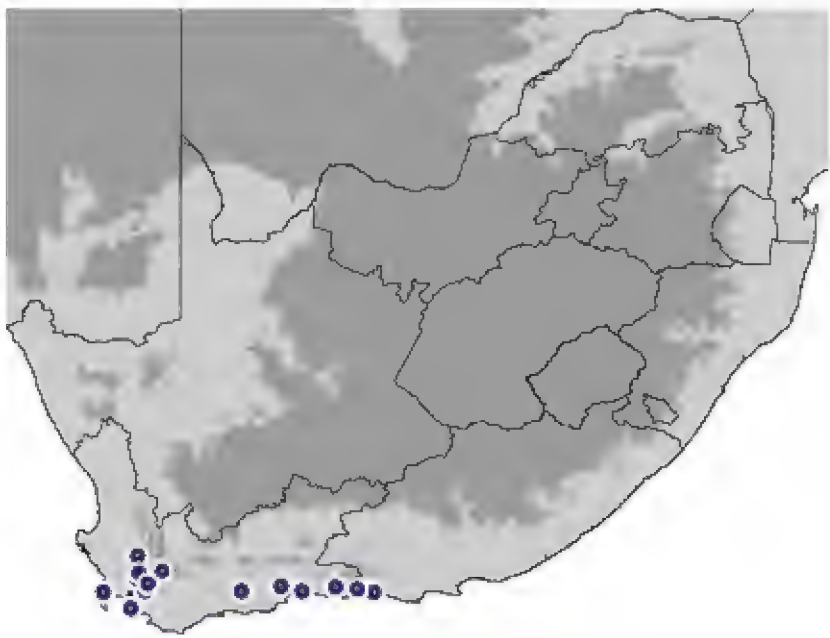
Hindwing length: 31.5–32.0 mm

Mahogany Presba

Syncordulia venator (Barnard, 1933)

Appearance: The Mahogany Presba is fairly large with a hairy thorax, overall reddish brown with paired yellow dashes along the abdomen. Face all light reddish brown with a covering of dense, dark brown hairs. Eyes dark brown above, light grey below. Thorax all reddish brown with pale yellow stripe above and in front of wings, sides with dark green metallic stripes and covering of long fine white hairs appearing almost like fur. Wings with black veins, slightly smoky. Pterostigmas dark reddish grey, 2.8 mm long. Abdomen reddish brown with series of double pale yellow dashes on segments 3 to 7, each double dash looks like a hoof print and is surrounded by brownish black. Appendages long, dark brown, with covering of stiff dark brown hairs. Female very similar, abdomen very stout, wings more smoky.

Field notes: The Mahogany Presba is endemic to the Western Cape, occurring up to the Eastern Cape border and can be found at 300 to 1 300 m elevation. Its habitat is clear montane streams with an abundance of boulders and pools in bushy or woodland areas. It hawks rapidly up and down over stream pools and among fringing bushes, sometimes seen flying over fynbos away from the stream. On the wing from September to March.

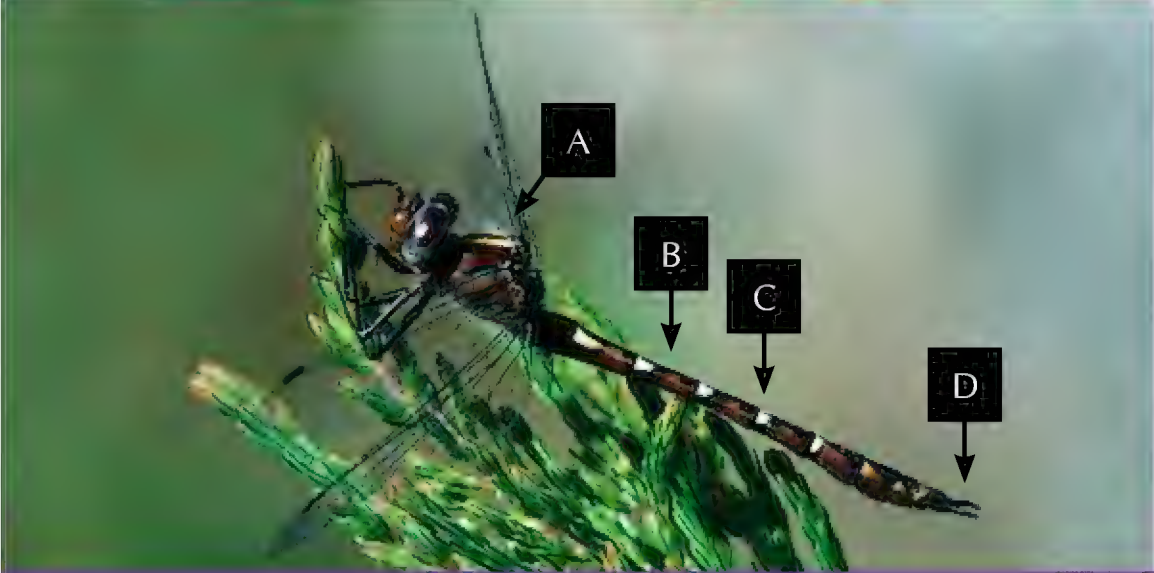
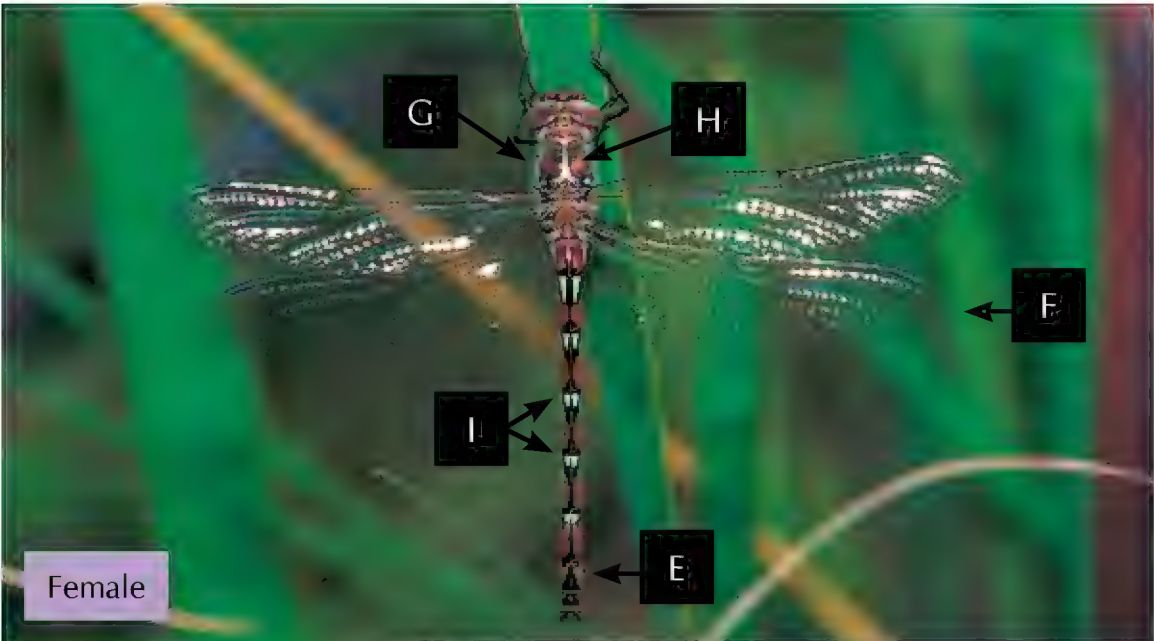
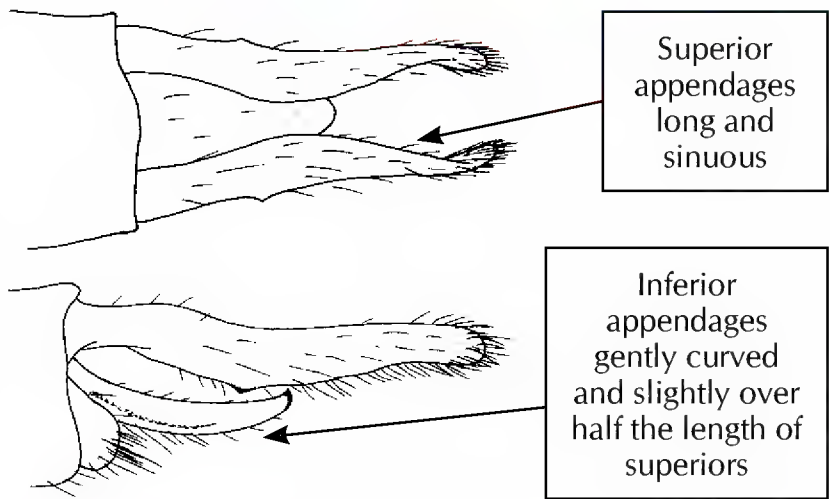


Threat

VU

DBI

7



- Distinctly reddish brown with slightly smoky wings
- Pointed yellow stripe on top of thorax
- Thorax with covering of fine white hairs
- Abdomen with paired, pointed, pale yellow, hoof-like spots

- A. Thorax weakly striped
- B. Mahogany, reddish brown
- C. Distinct yellow spots from side
- D. Long, sinuous superior appendages
- E. Abdomen of similar width along length
- F. Slightly smoky wings
- G. Covering of fine white hairs
- H. Pointed, pale yellow stripe on top of thorax
- I. Paired, pale yellow, hoof-like spots against black background

Body length: 49–50 mm

Hindwing length: 28 mm



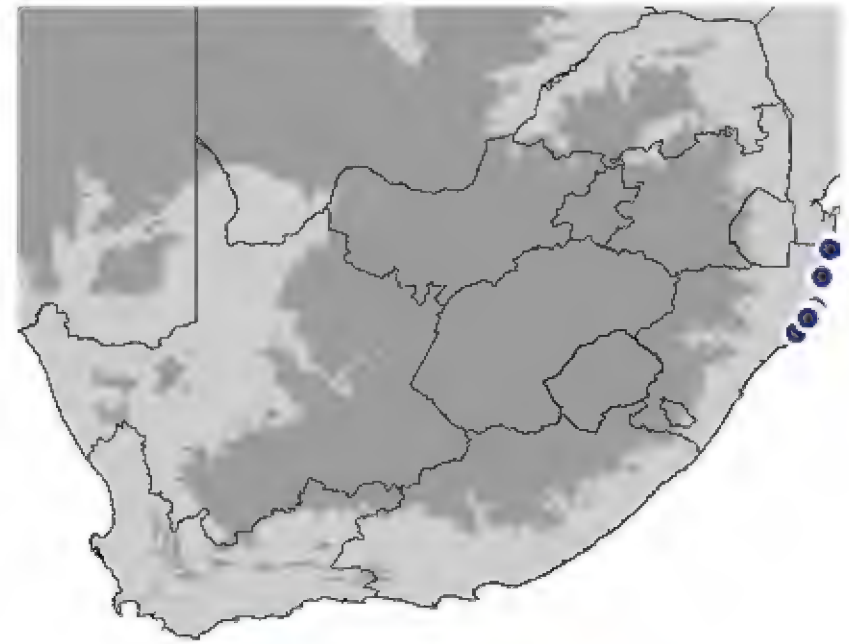


African Emerald

Hemicordulia africana Dijkstra, 2007

Appearance: The African Emerald is medium sized to fairly large, slender, with bright metallic green and yellow dashes. Face olive and yellow, covered with dense dark hairs. Labrum yellowish brown, rest of face olive, grading into a metallic dimpled upper surface of the frons. Head dimpled and metallic green from above. Eyes greenish above, greyish olive below. Thorax bright metallic green with alternating pale dull yellow bands and covering of dense light brown hairs on upper surface. Wings slightly smoky, especially central area of hindwing. Pterostigmas very short (1.8 mm long), deep reddish brown. Abdomen narrow and rounded above, flattened and metallic green below. Indistinct pale yellow dashes present on sides of segments 6 to 8. Appendages long, slender, dark brownish black. Female similar, abdomen more cylindrical and swollen towards end, wings distinctly smoky especially at bases, yellow abdominal side-markings more extensive and run along most of abdomen.

Field notes: The African Emerald occurs in northern coastal KwaZulu-Natal and its range extends north to East Africa. Its habitat is grassy forest clearings and margins near pools or streams in swamp forest. It hawks up and down at forest margins, frequently landing to hang vertically from a twig in the shade, 2 to 3 m above the ground. On the wing from October to April.

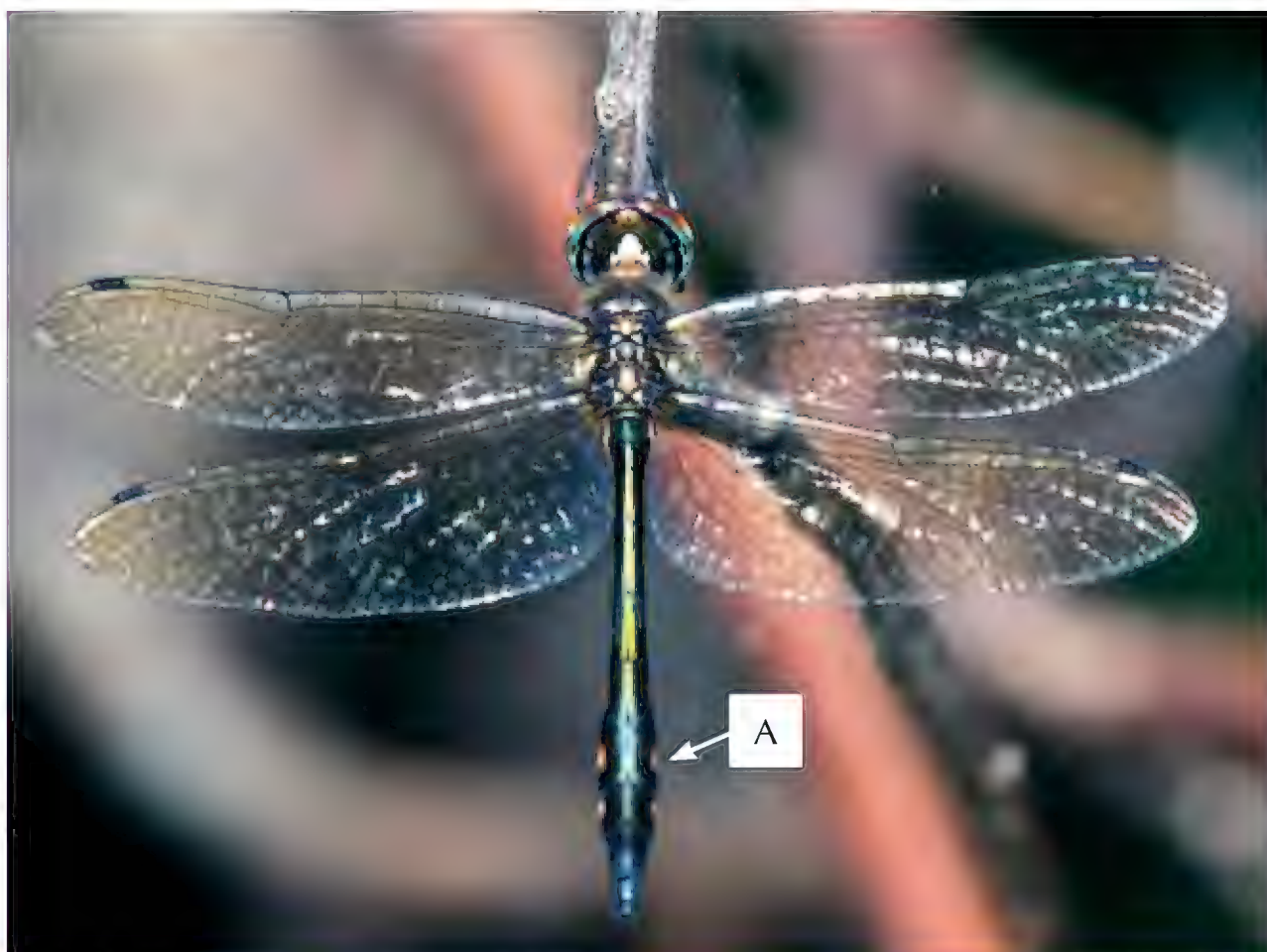
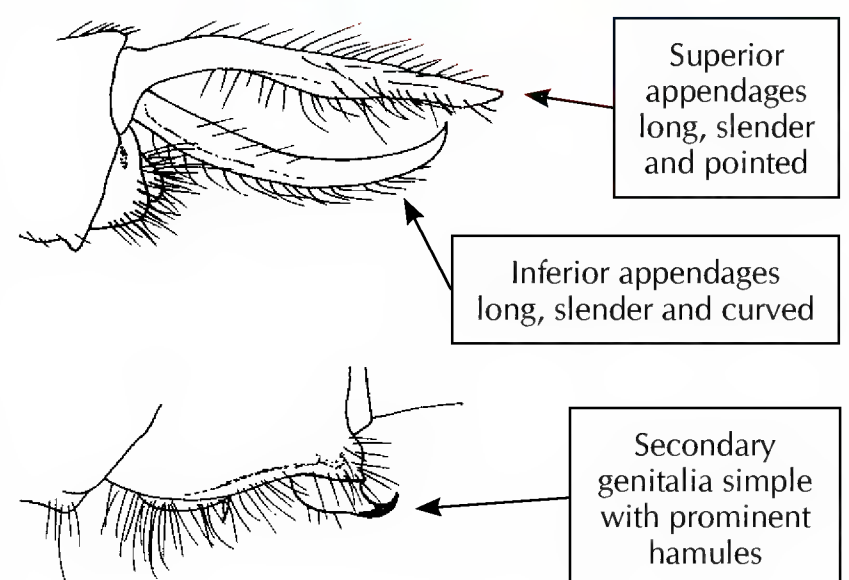


Threat

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DBI

5



- Bright metallic green, narrow abdomen
- Perches at end of twigs on trees in warm, coastal, northern KwaZulu-Natal

A. Very shiny, metallic green abdomen, with small spots at end

Body length: 44–45 mm

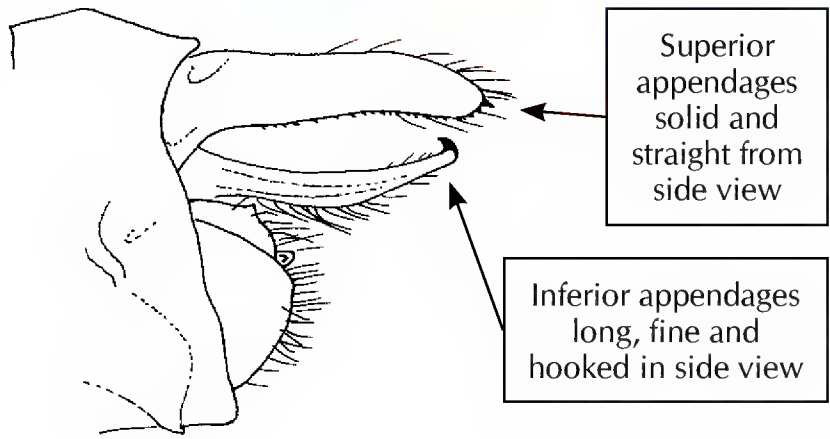
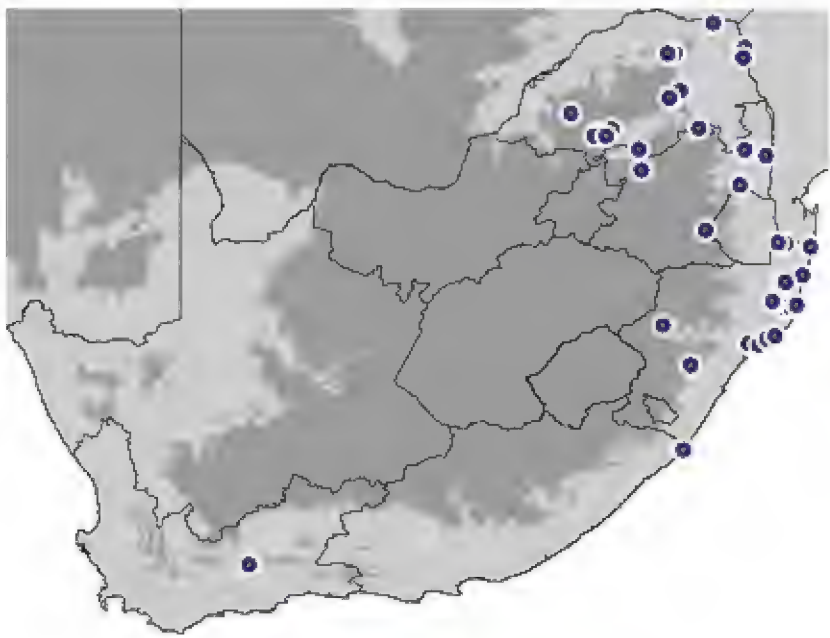
Hindwing length: 37.5–38.0 mm

Two-banded Cruiser

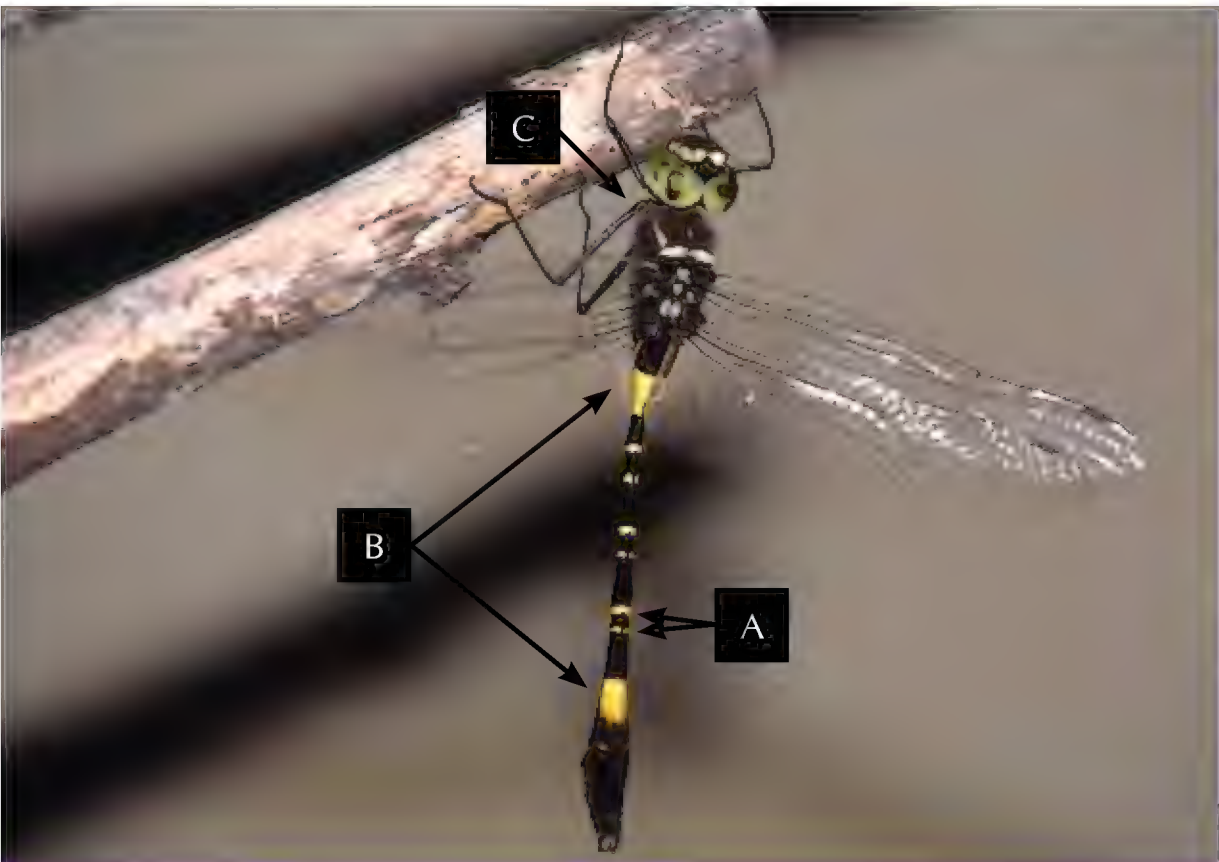
Phyllomacromia contumax Sélys, 1879

Appearance: The Two-banded Cruiser is very large, all black and yellow with a distinct yellow waist and a wide yellow band near the end of the abdomen. Face dark brown with yellow side spots on postclypeus and frons. Two triangular yellow spots present on upper surface of frons and its projections. Head metallic blue above. Eyes olive to bright green with yellow margins. Thorax all sides dark brown with slight metallic sheen, becoming black above with small yellow spots between wings. Wing tips very smoky in young individuals, with age becoming overall slightly smoky with small dark brown markings around bases of veins. Pterostigmas short (3 mm in forewing, 2.7 mm in hindwing), deep reddish brown. Abdomen narrow, expanded into distinct club at segments 7 to 9, dark brown to black with bright yellow markings. Bright yellow ring present on segments 3 and 7 with finer rings on other segments. Segments 8 to 10 all black. Superior appendages black. Female similar, stouter and shorter (length 58–60 mm), with more extensive brown patches at wing bases, wings with darker smoky tips.

Field notes: The Two-banded Cruiser is most common in coastal KwaZulu-Natal but can be found throughout much of Mpumalanga and Limpopo Province up to 1 250 mm elevation. There is one Western Cape record. Its range extends to central Africa. It is mostly seen away from the water at forest margins and along vehicle tracks, most common in humid open coastal forest, although there are some hinterland re-



cords at streams. It is often seen cruising up and down forest margins rarely flying more than 2 m above the ground, often passing the observer close by. At other times, it may be seen flying high among the tree canopy. It also cruises along lake edges and streams. In coastal areas, the females frequent lake edges. On the wing from November to May.



- Very large, black and yellow, with bright green eyes
 - Two wide yellow rings
 - Three pairs of narrow double rings
 - No stripes on side of thorax (only a small shoulder stripe)
- A. Narrow double-rings
B. Two distinct yellow rings
C. No side stripes

Body length: 76–78 mm

Hindwing length: 53–54 mm





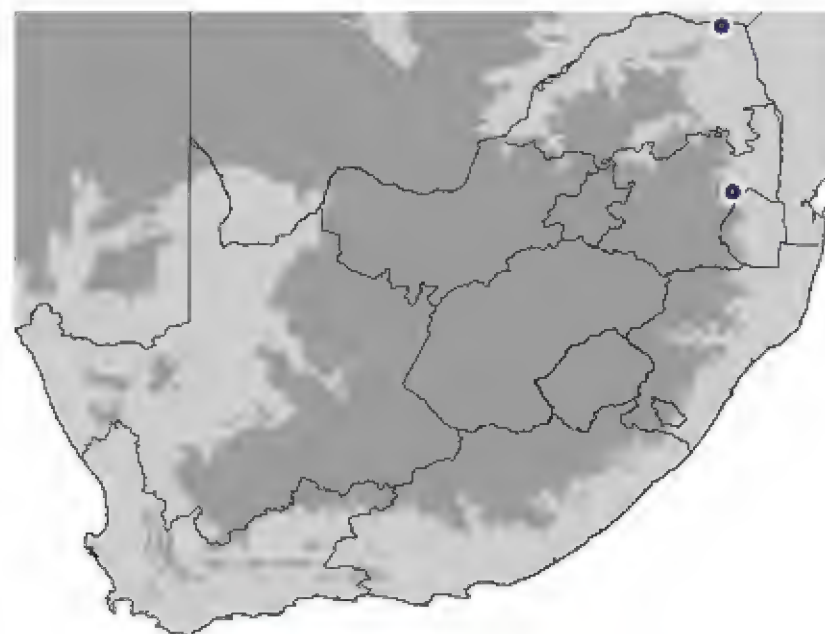
Sable Cruiser

(Unicorn Cruiser)

Phyllomacromia monoceros (Förster, 1906)

Appearance: The Sable Cruiser is very large, black and yellow, with a yellow and black striped thorax. Face brownish to olive becoming yellow at sides. Frons dark brown, slightly metallic with diffuse yellow spot. Head metallic bluish black above. Eyes turquoise and bluish above, greenish below. Thorax dark brown and greenish yellow striped, these dark and light stripes of equal widths, dark areas with slight sheen. Wings clear. Pterostigmas black, 2.8 mm long. Abdomen narrow with distinct club on segments 7 to 9, mostly dark brown to black with small yellow saddle on segment 2 and small yellow spots along the length. Segments 5 and 6 almost all black from above. Yellow ring present around first third of segment 7. Segments 8 to 10 and superior appendages black. Segment 9 with backward-pointing spine, segment 10 with huge conical upright spine. Female similar, much stouter and marginally larger.

Field notes: In South Africa, the Sable Cruiser has only been recorded rarely from the northern provinces and its range extends to East Africa. Its habitat is hillsides near rivers and streams in bushveld. It cruises rapidly along rivers and streams and along trees on hillsides. In South Africa it has been recorded as on the wing at least from December to March.

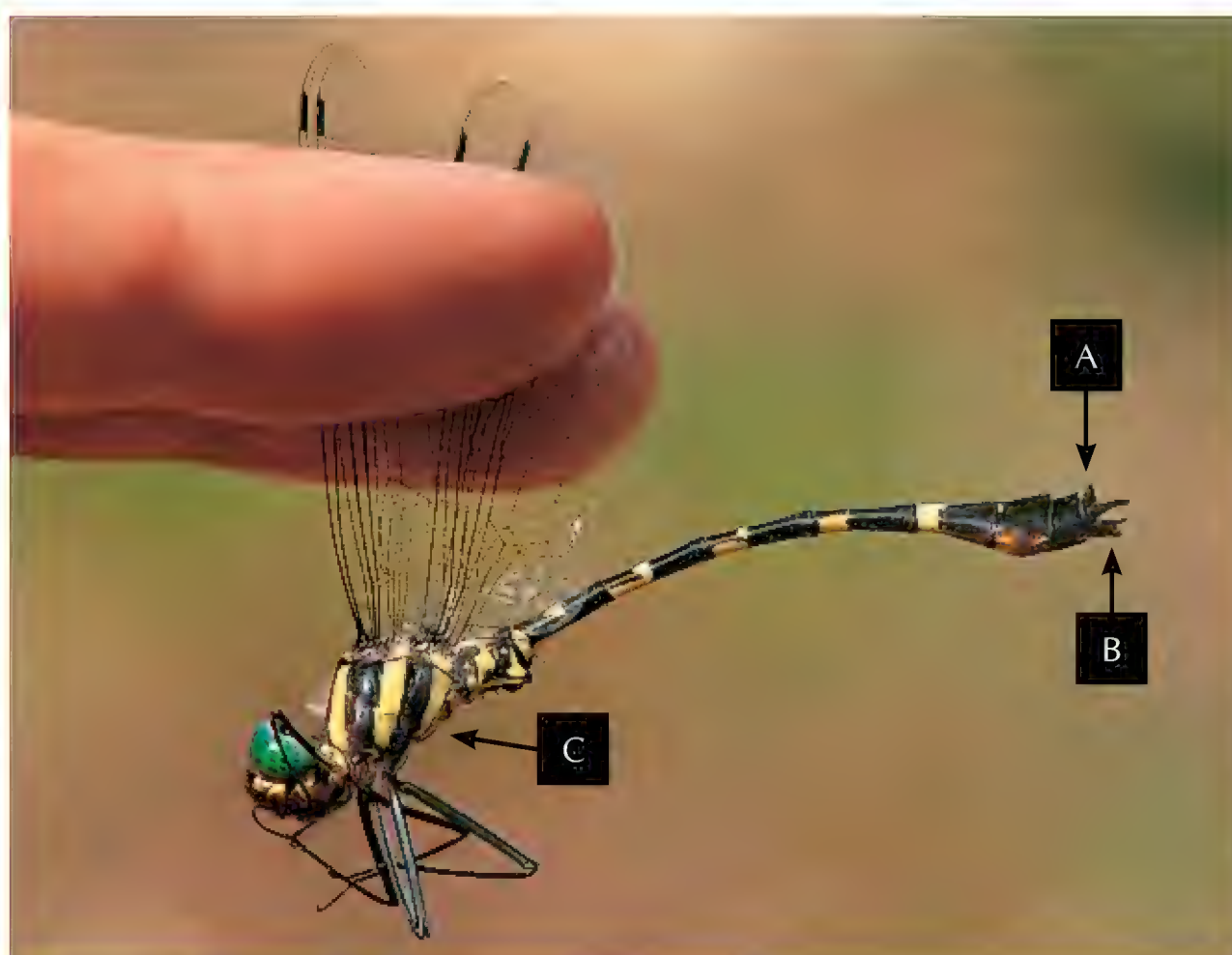
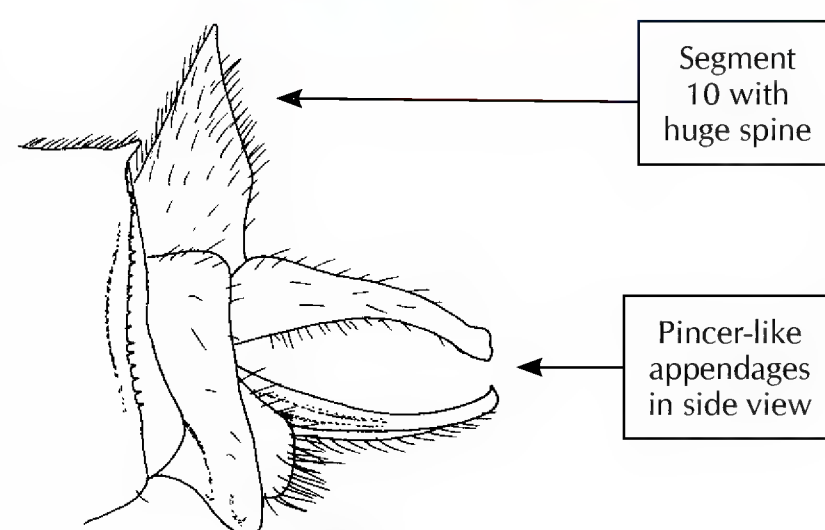


Threat

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DBI

5



- Very large, black and yellow
- Bold contrasting stripes on side of thorax
- Black appendages

- A. Huge conical upright spine
B. Appendages black
C. Strong yellow stripes

Body length: 64–65 mm

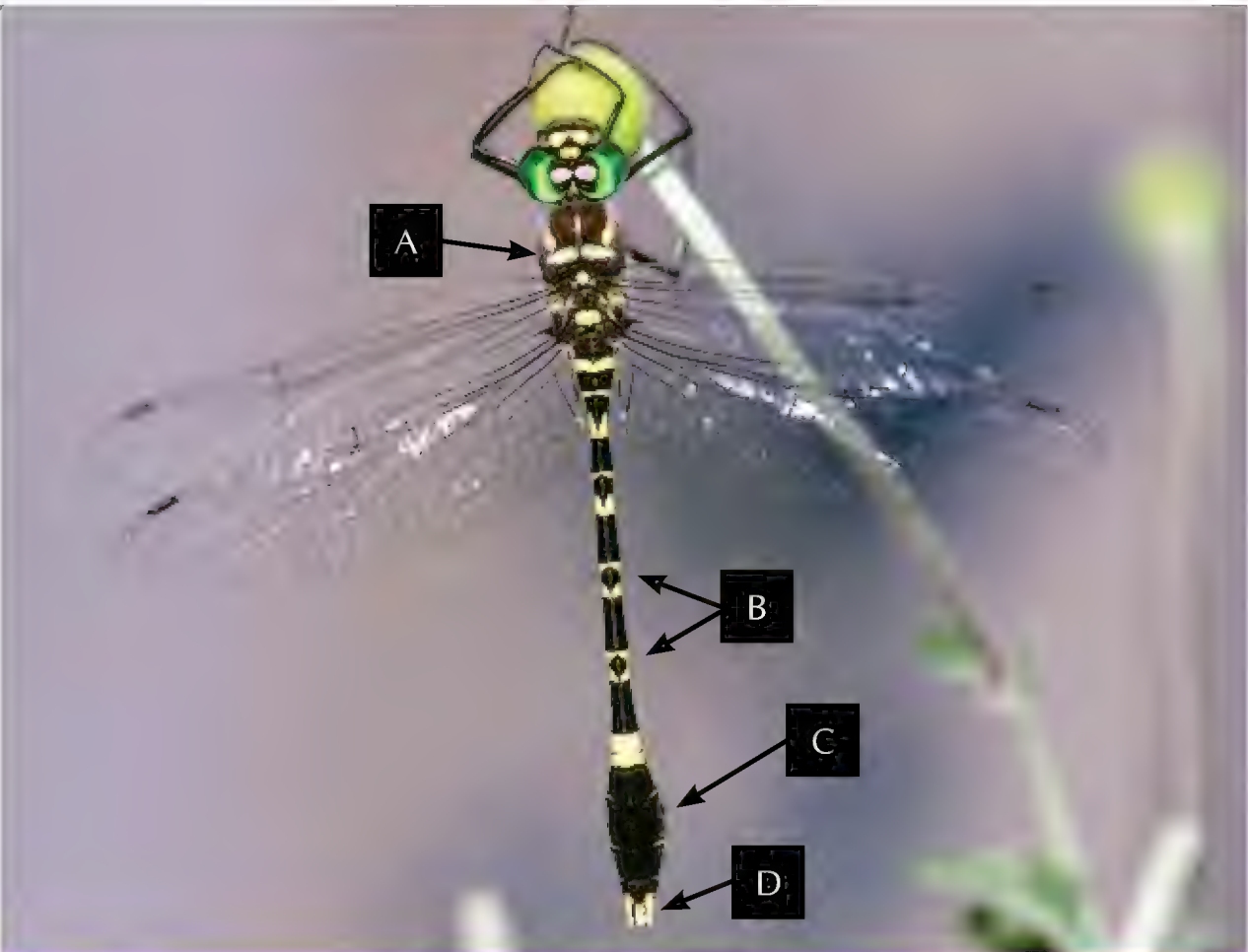
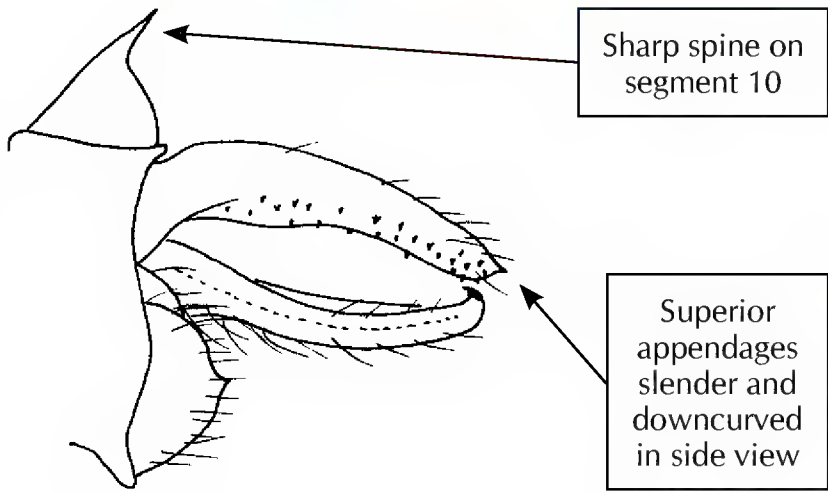
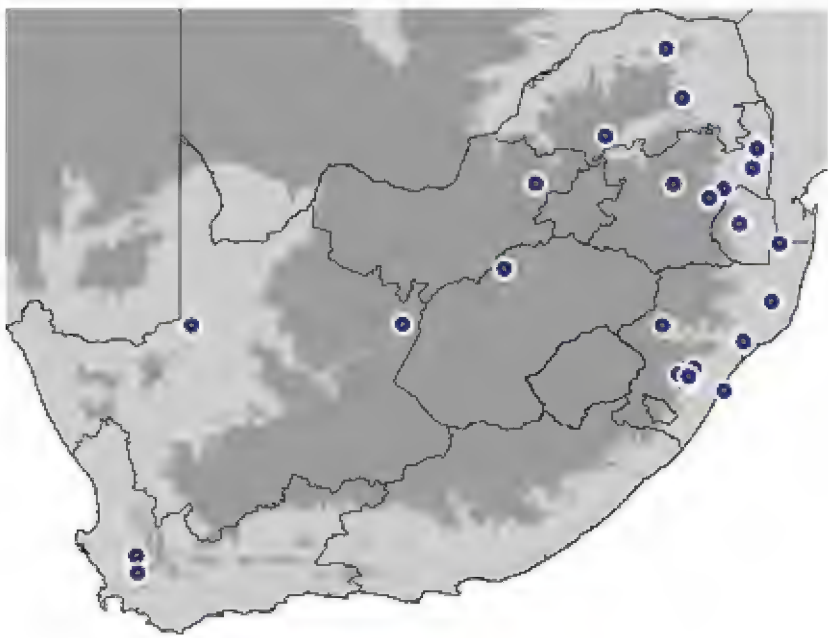
Hindwing length: 40 mm

Darting Cruiser

Phyllomacromia picta (Hagen in Sélys, 1871)

Appearance: The Darting Cruiser is fairly large to large, black and yellow, and very strikingly ringed. Face yellowish brown. Labrum reddish brown. Postclypeus mottled greenish brown with yellow margins. Frons dark shiny brown and spotted yellow on side margin and on top. Head very dark brown and slightly metallic above. Eyes bright green, lighter on top with small black cap. Thorax with two black and three yellow stripes of equal width, yellow spots present between bases of wings. Pterostigmas reddish brown, 2.3–2.5 mm long. Wings slightly to moderately smoky. Abdomen slender with distinct club from segments 7 to 9, alternately black and yellow with angular yellow markings. First half of segment 7 with distinct yellow ring, second half of segment 7 and all of segments 8 to 10 black. Superior appendages yellow. Segment 10 with strong vertical spine above. Female similar, distinctly stouter, club less conspicuous, wings smokier.

Field notes: The Darting Cruiser has been recorded at scattered localities across South Africa from 100 to 1 600 m elevation. It extends to central Africa and occurs in association with large dams and meandering rivers, often with margins of thick bush. It flies fast, darting back and forth over grassland between trees and sometimes along rivers. On the wing from November to April.



- Large, black and yellow
- White appendages
- A. Side of thorax with black and yellow stripes
- B. Angular markings
- C. Distinct club on slender abdomen
- D. Contrasting pale appendages

Body length: 50–55 mm

Hindwing length: 32–35 mm



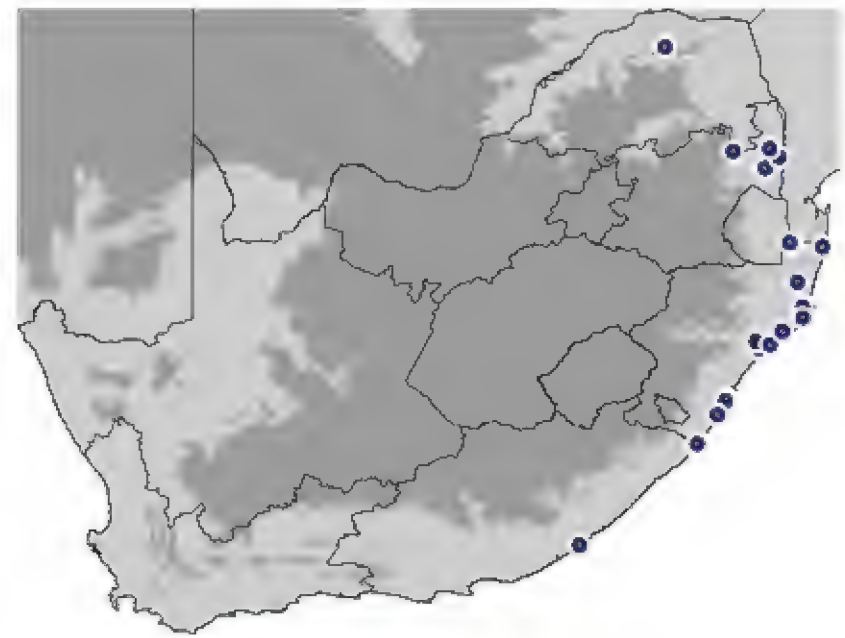


Black-splashed Elf

Tetrathemis polleni (Sélys, 1869)

Appearance: The Black-splashed Elf is unmistakable: small, slender, pale blue with huge roundish wing bands. Face banded yellow and dark brown. Labrum blackish brown. Anteclypeus and postclypeus greenish yellow, edged in dark brown. Frons dark brown in front, dimpled metallic blue above, with yellow side spots. Head dimpled metallic blue above with distinct peaks, yellow spots on back of head immediately behind each eye. Eyes dark blue above, light blue below. Thorax all pruinescent pale blue above, yellow on sides with indistinct dark brown and pruinescent blue stripes. Wings distinctly rounded, outer halves all black, blackness only developing in fully mature individuals. Pterostigmas black. Abdomen slender, all pale blue pruinescent above with yellow spots on sides of segments 1 and 2. Female black with yellow stripes and patches, head pattern and colouring similar, peaks on top of head not so prominent, eyes reddish brown above and light blue below, wings usually clear but sometimes with dark tips or diffuse dark brown patches.

Field notes: The Black-splashed Elf occurs along the east coast from the Eastern Cape, becoming common in central and northern KwaZulu-Natal. Its range extends to the savanna areas of the lowveld in Mpumalanga and Limpopo Province. It then extends to West Africa, and is also found on Madagascar and the Comoros. It occurs at forest pools and the forested margins of still reaches of rivers where the canopy over-

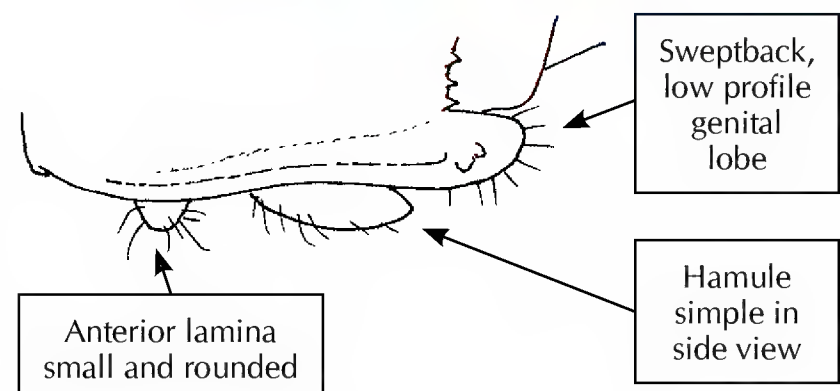


Threat

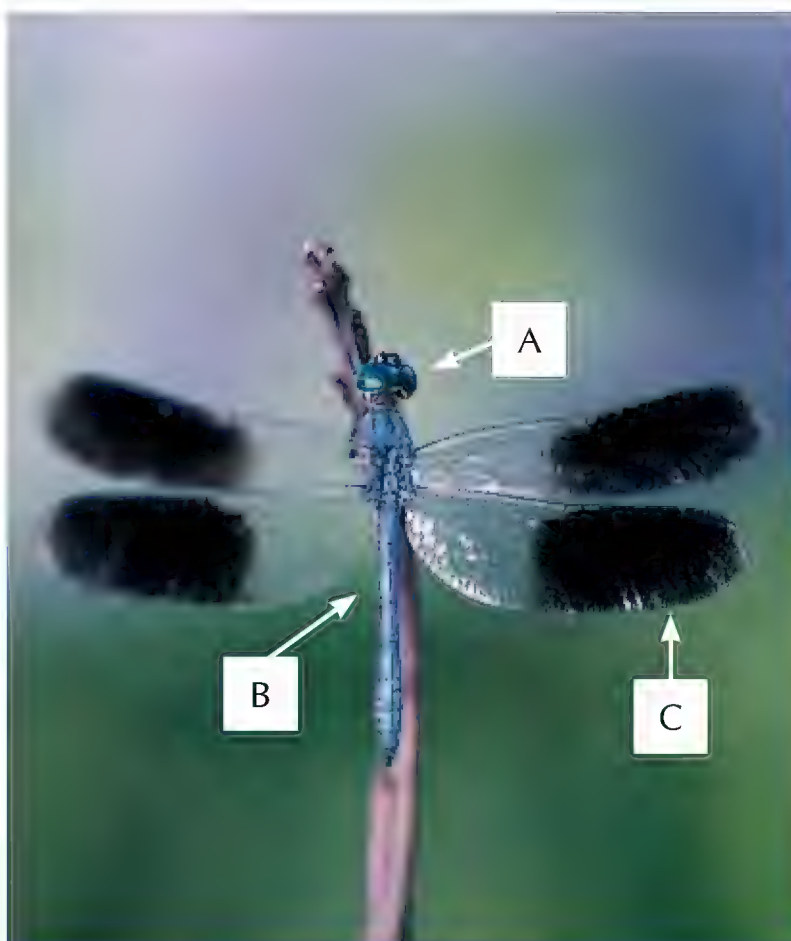
LC

DBI

3



hangs the water. It is conspicuous as it perches on the tip of a branch, often with its wings forward, head down and abdomen up at an angle. This perching position is usually over the water. The flight is fluttering but strong, and individuals soon return to their perches. On the wing from October to March.



- Pruinescent, pale blue body and all wings with large black bands
- In hot areas

- A. Eyes dark blue above
- B. All pale blue body from above
- C. Huge wing bands on all wings
- D. Pruinescent blue over yellow sides
- E. Wing tips rounded

Body length: 30.0–32.5 mm

Hindwing length: 24–25 mm

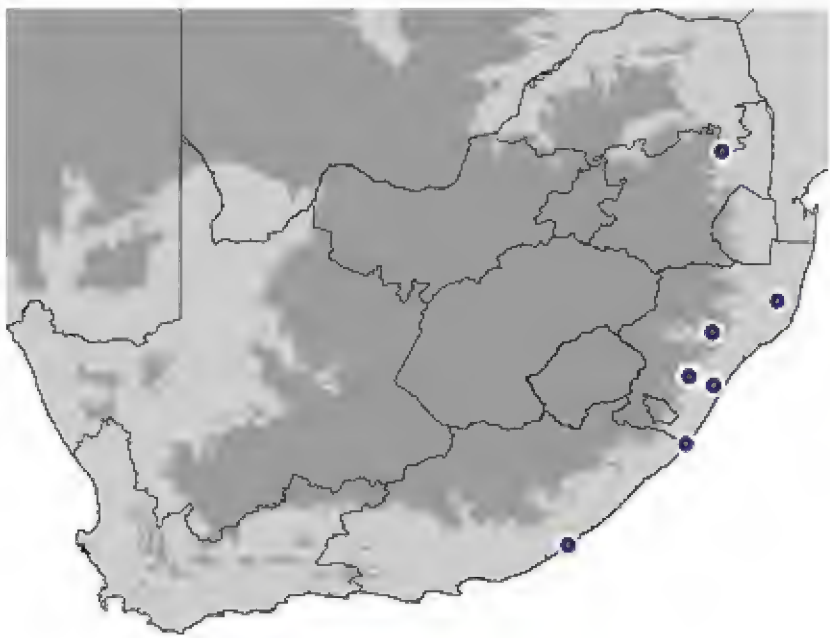
Eastern Forestwatcher

(Jones' Forestwatcher)

Notiothemis jonesi Ris, 1919

Appearance: The Eastern Forestwatcher is small, grizzled grey with a cream/greenish patch near the end of the abdomen. Face cream and light blue. Labrum cream. Anteclypeus grey, postclypeus greyish cream. Frons light blue in front, with grey and cream blotches on sides, top of frons adjacent to top of head deeply grooved, groove blackish inside with frons bright metallic bluish green at edges. Head bright metallic bluish green above. Eyes striking bright turquoise, greyish below. Thorax contrastingly striped dark brown and light creamish blue. Area between wings dark brown with cream-grey spots. Wings clear to slightly smoky with very small dark brown splash at base of each hindwing. Pterostigmas dark reddish brown, 2 mm long in forewing, 2.4 mm long in hindwing. Abdomen slender, slightly bulbous at end, blackish with variable greyish blue or greenish patches and rings, segment 7 with conspicuous cream or greenish dorsal patch. Female all light yellowish, light reddish and dark brown with dorsal cream patch on segment 7 which is not as conspicuous, eyes light grey.

Field notes: The Eastern Forestwatcher occurs along the coastal plain from the Eastern Cape through KwaZulu-Natal to the Mpumalanga lowveld up to 800 m elevation and its range extends to East Africa. It is found in woodland and thick savanna with forest pools and with slow

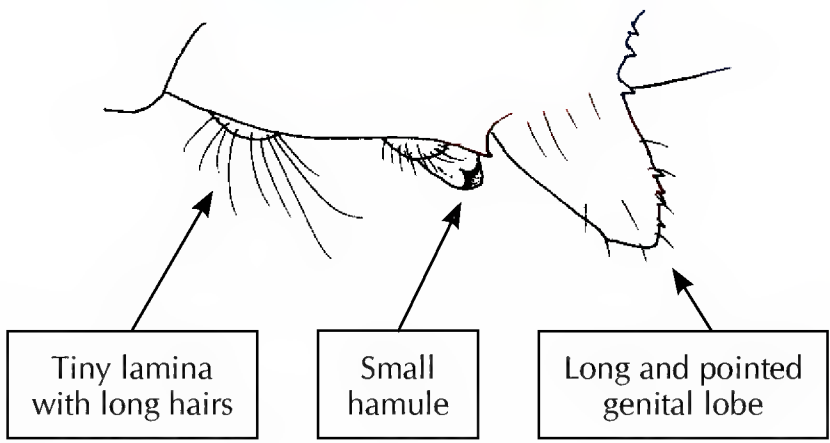


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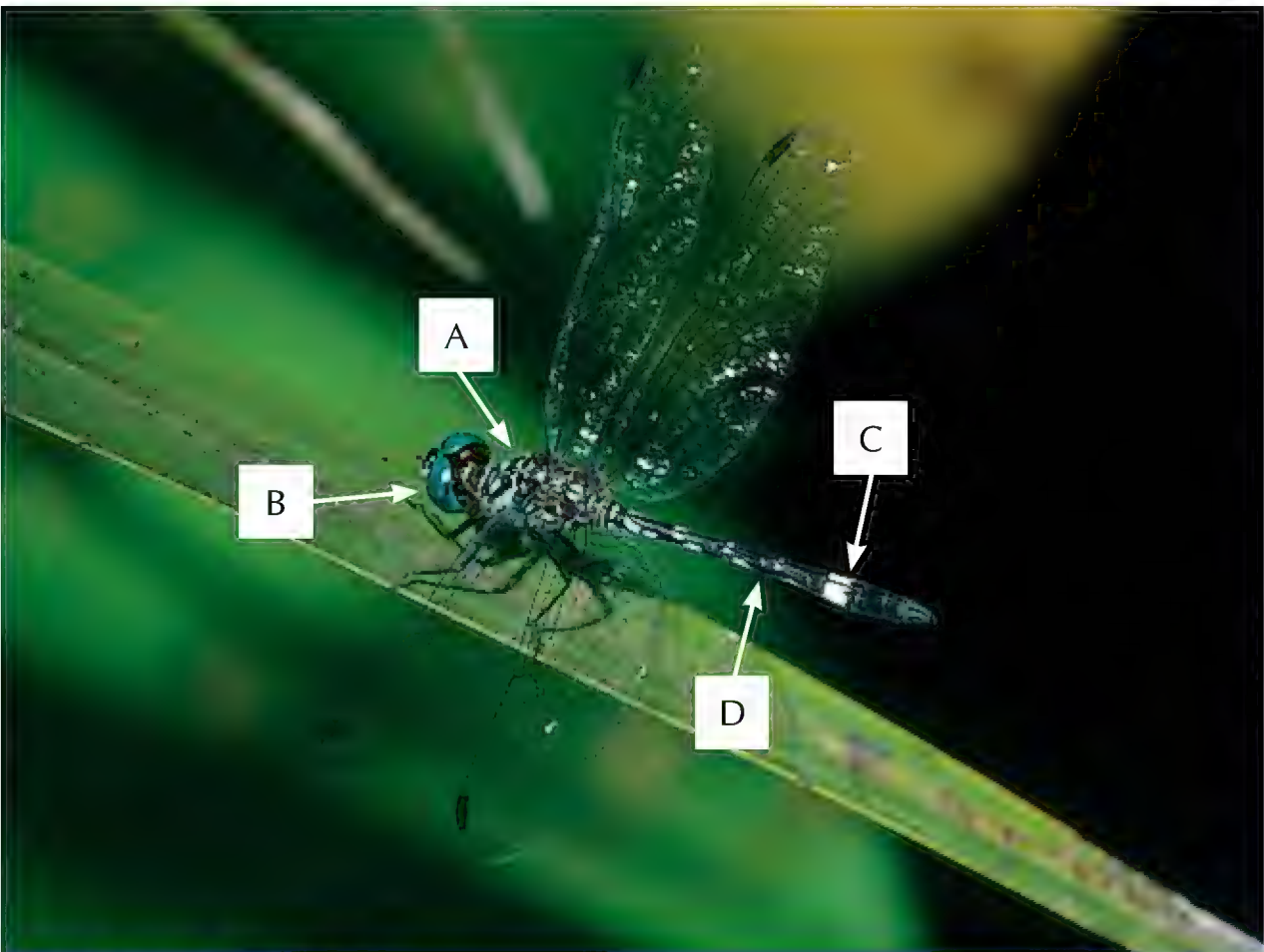
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DBI

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reaches of streams and rivers. This is a very alert little species that perches conspicuously along a reed blade or a twig over the water in a sun-fleck of the forested surroundings. The female is very rarely seen. On the wing from December to March.



- Very small dragonfly of forested areas
 - Thorax strongly striped in front
 - Cream dorsal patch on segment 7
- A. Strongly striped front of thorax
B. Eyes strikingly bright turquoise
C. Cream dorsal patch
D. Greenish patches and rings

Body length: 32–33 mm

Hindwing length: 24–25 mm



LIBELLULIDAE (Skimmers)



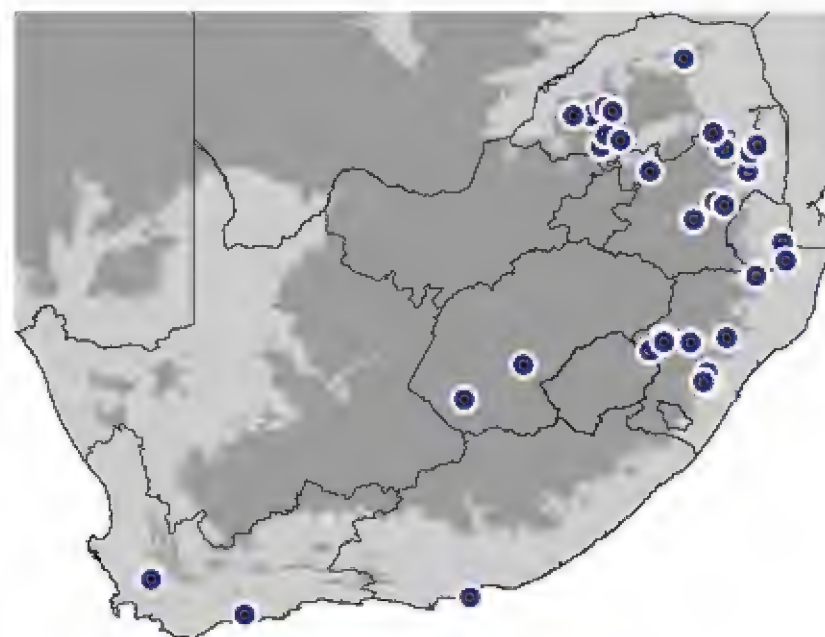
Little Skimmer

Orthetrum abbotti Calvert, 1892

Appearance: The Little Skimmer is small to medium sized, all pale blue with slightly smoky wings and long light brown pterostigmas. Face narrow, mostly pale grey. Labium and labrum cream. Anteclypeus, postclypeus and frons light grey, each edged in black, including a half to full spectaclled area in dark brown becoming light below on front of frons. Head dimpled shiny black with small peaks above. Eyes dark greyish blue above, light turquoise below. Thorax all pruinulent pale greyish blue. Wings slightly smoky. Pterostigmas comparatively large and long (3.4–3.5 mm long), light brown with dark brown front margin. Costa and antenodal crossveins yellow. Abdomen slender and all pruinulent pale greyish blue.

Female: face all greenish cream, unmarked except for two blackish markings on upper surface of frons next to eyes. Head dark brown above with low peaks. Thorax greenish cream, virtually unmarked except for darkening of sutures, upper surface covered with minute blackish spines giving a fine spotted appearance. Wings slightly smoky with darker smoky patches reaching half-way along wing. Costa yellow. Abdomen light yellowish brown with dark brown lateral markings starting on segment 4, becoming wider and joining on segment 8. Segment 9 all dark brown. Segment 10 yellowish behind with two fine black dots. Fine blackish line runs along top of abdomen from segments 3 to 8 with paired dark markings at ends of each of segments 3 to 7.

Field notes: The Little Skimmer is a localised species, highly so in the Western and Eastern Cape,

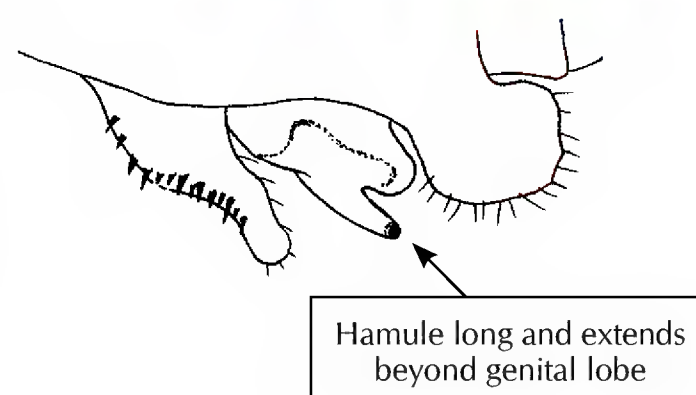


Threat

LC

DBI

2



becoming more widespread in KwaZulu-Natal and the northern provinces up to 1 800 m elevation. It extends to central Africa and also occurs in Madagascar. It frequents marshy pools beside trickling montane streams, especially in rolling open grassland. It occasionally occurs in lowland pans and in small grassy pools cut off from the main river. It has a weak flight, frequently returning to the same grass or reed perch. On the wing from November to May.



- A small skimmer
 - All pale blue
 - Light yellow leading edges to wings
 - Yellow crossveins
- A. Pterostigmas large and long
B. Light grey spectaclled face
C. Top of nose shiny black, dimpled, with two small peaks
D. Yellow antenodal crossveins
E. Yellow leading edge
F. All pale blue body

Body length: 36–37 mm

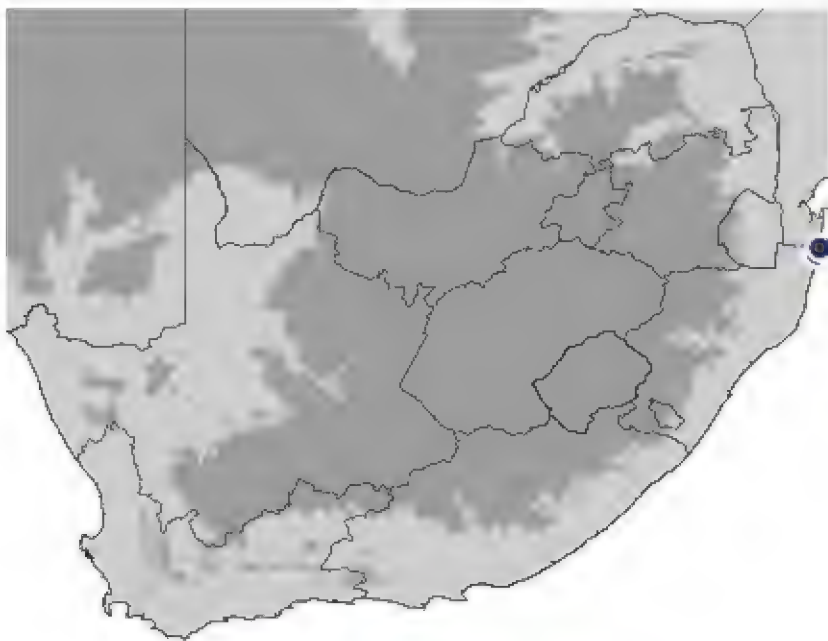
Hindwing length: 26.0–26.5 mm

Tough Skimmer

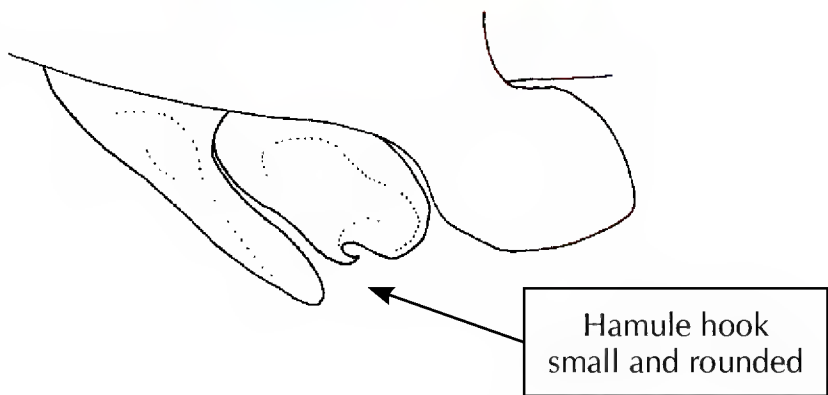
Orthetrum brachiale (Palisot de Beauvois, 1817)

Appearance: The Tough Skimmer is fairly large, robust and strongly marked when young, turning brown and blue on the abdomen as pruinescence develops. Face mostly pale grey above, brown below. Labrum pale blue, anteclypeus light greyish brown, postclypeus pale blue surrounded by dark brown on sides. Top of head dark brown, dimpled. Eyes greenish blue with dark spots. Thorax greyish brown with strong, dark brown stripes on shoulders and sides, overall becoming darker brown and then pruinescent light blue with age, giving a pale blue stripe; no cream stripes on sides. Area on top of the thorax between wing bases remains pale greenish blue as sides darken. Wings clear, costas cream, base of hindwing dark brown. Pterostigmas dark brown with lighter centres, 3.8–4.0 mm long. Abdomen, when young, heavily marked with dark rings against light background, and with a long, thin, dark, dorsal stripe. With age these dark markings become obscured with blue pruinescence, while the tip remains blackish. Female light brown with striking fine, dark brown lines on shoulders and sides, abdomen with blackish rings and side patches, and a fine dark line runs along the top of the abdomen.

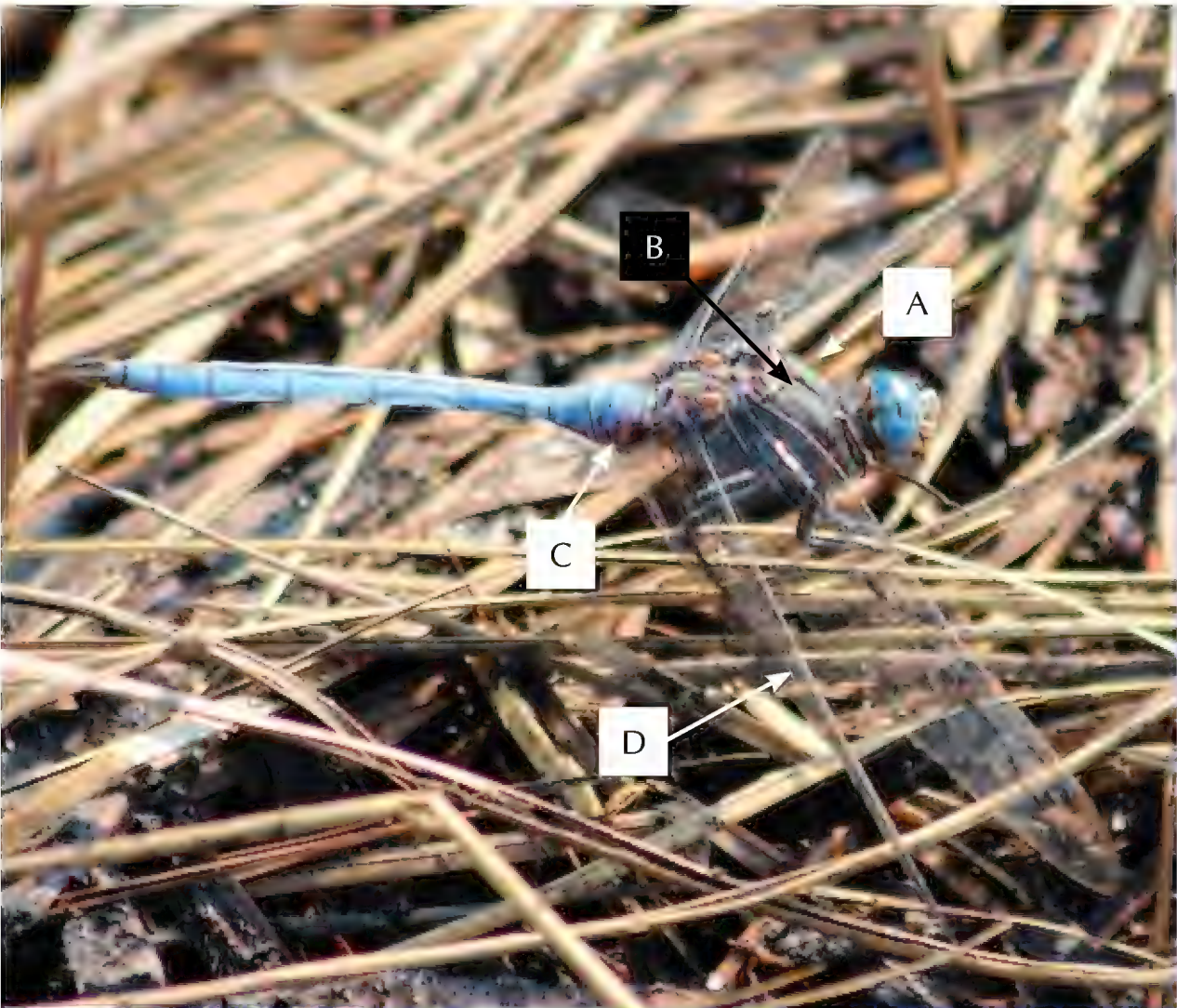
Field notes: The Tough Skimmer has been recorded with certainty only from northern KwaZulu-



Threat	DBI
LC	2



Natal, but is likely to have a wider distribution. Extends to East and West Africa. Favours open pools and perches on long grass at the margins. On the wing at least December to March.



- Robust
 - Strongly marked thorax
 - Pale line on top of thorax between wings
- A. Strong shoulder stripe
B. Pale line on top of thorax
C. Dark brown at base of hindwings
D. Leading pale edge

Body length: 47–50 mm

Hindwing length: 32–37 mm





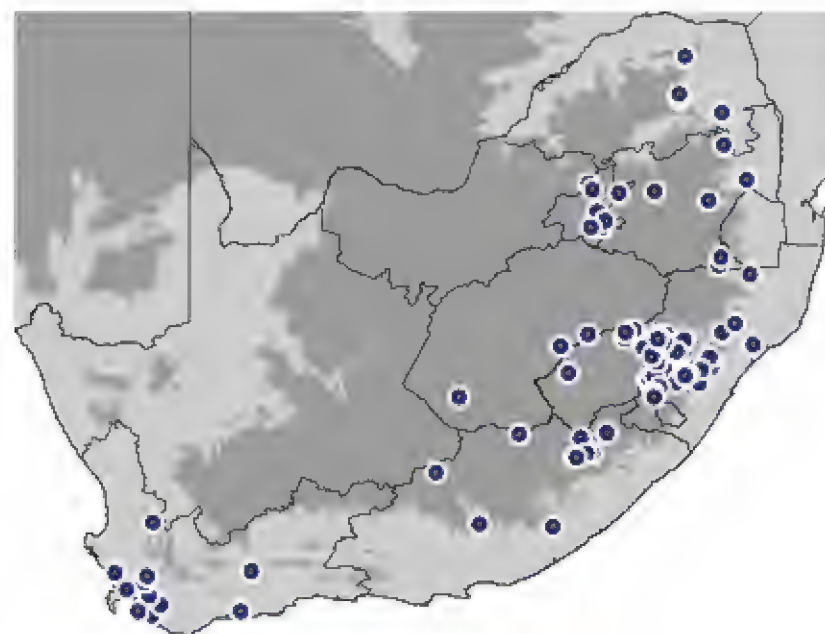
Two-striped Skimmer

Orthetrum caffrum (Burmeister, 1839)

Appearance: The Two-striped Skimmer is medium sized, pale blue and has a brown thorax with two pale side stripes and a whitish stripe between the wings. Face light grey, not spectacled. Labium buff. Labrum and anteclypeus light buff grey. Postclypeus and frons light grey becoming brownish below. Thorax dark brown, only slightly pruinose, in addition to the shoulder stripe each side has two light yellowish grey stripes bordered above in blackish brown that become obscured with pruinoscence in very old individuals. Strong whitish stripe varying from slightly greyish to cream present between wings running along top of thorax, this stripe can become pruinose blue in old individuals. Wings slightly smoky. Pterostigmas short (2.8–3.0 mm long), light yellowish brown. Costa and crossveins yellowish. Abdomen pale pruinose blue with tendency to become brown at base.

Female: light reddish brown, almost pink in Western Cape. Face mostly light grey with cream labrum. Eyes light brown. Thorax light reddish brown with two distinct cream side stripes and a shoulder stripe. Whitish stripe running between the wings also present. Pterostigmas light yellowish brown. Abdomen light reddish brown with weak dark brown side markings running along the length. Minute black foliations present on segment 8.

Field notes: The Two-striped Skimmer occurs throughout most of the southern and eastern mountainous regions of South Africa. Although it can occur at sea level in the Western Cape, fur-

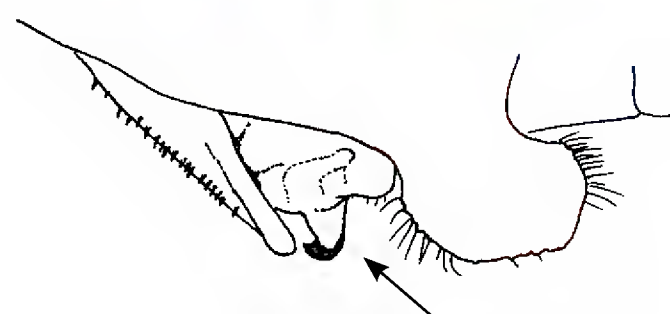


Threat

LC

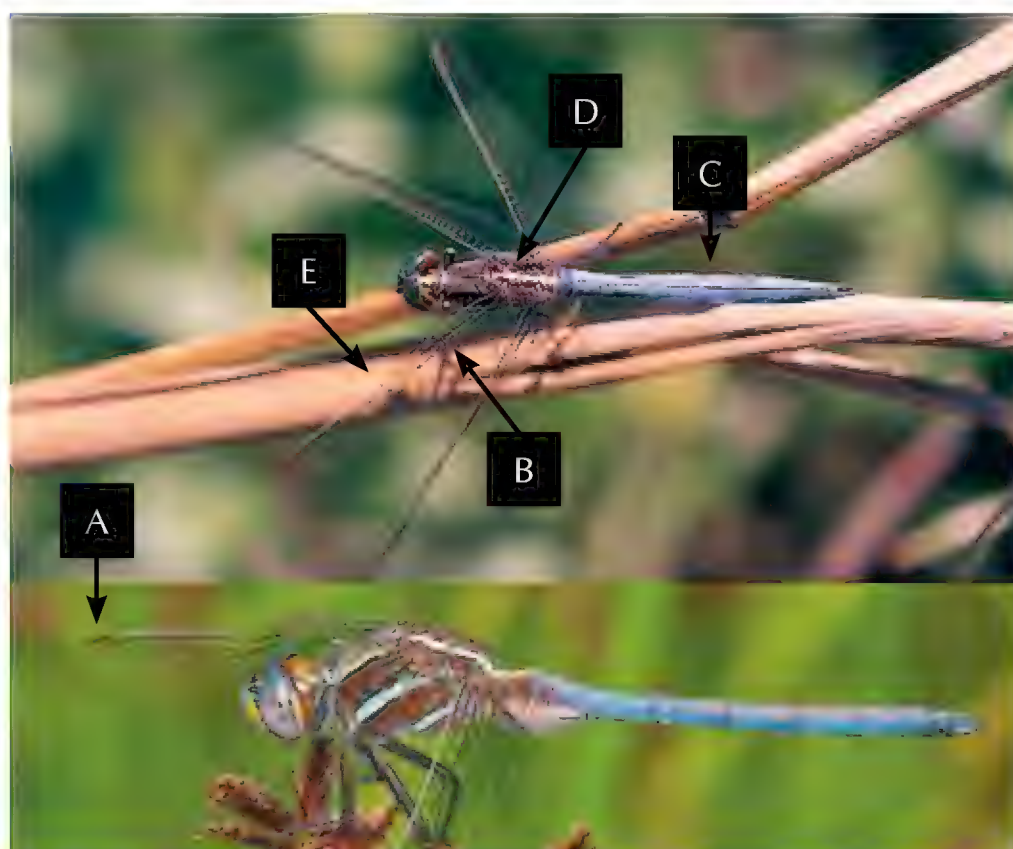
DBI

3



Hamule large, and with a forward-pointing hook

ther north it usually occurs above 700 m elevation. It extends to central Africa and also Madagascar. It occurs around montane pools and still reaches of streams and rocky rivers, and sometimes in marshes. It perches on sticks or reeds over the water, darting out to feed, defend its territory or to court, then returning to its perch. On the wing from October to March.



- Medium-sized skimmer
 - Light stripe along top of thorax
 - Forward-pointing hamule hook
 - In addition to shoulder stripe, two cream stripes on side of thorax
- A. Pterostigmas short, light yellowish brown
 B. Yellow antenodal crossveins
 C. All pruinose light blue abdomen
 D. Stripe along mid line
 E. Yellow leading edge

Body length: 40–41 mm

Hindwing length: 28.5–29.5 mm

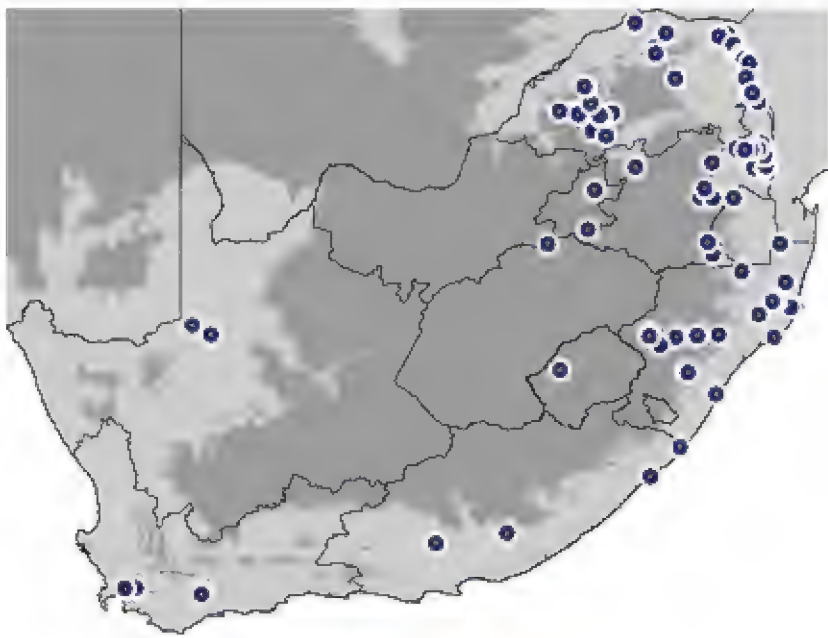
Epaulet Skimmer

Orthetrum chrysostigma (Burmeister, 1839)

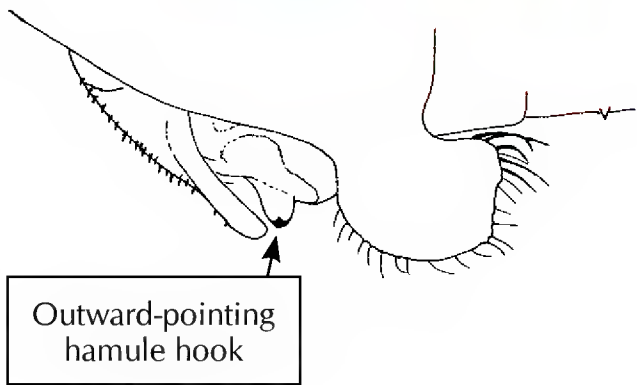
Appearance: The Epaulet Skimmer is medium sized to fairly large, brownish and pale blue, with a light single stripe on the side of the thorax. Face all grey. Labium, labrum, anteclypeus and postclypeus light grey. Frons pencil grey, squarely spectacled in light grey. Head shiny black above, dimpled, with prominent peaks. Eyes dull turquoise. Thorax dull dark brown with large but indistinct side stripe which can become obscured with pruinescence in old individuals. Pruinescent light greyish stripe present, running along top of thorax between wings. Wings clear, may become slightly smoky with age. Pterostigmas yellowish brown (3.4–3.5 mm long). Abdomen pruinescent pale blue.

Female: light brown. Face pale brown. Eyes dull turquoise. Thorax greenish to yellowish dark brown with strong light creamish stripe finely edged in black, pale shoulder stripe edged below in black also present. Abdomen yellowish brown, dark brown on sides, with segments 8 to 9 becoming darker brown above. Minute black foliations present on segment 8.

Field notes: The Epaulet Skimmer occurs throughout much of South Africa up to 1 500 m elevation, but has not been recorded from the West Coast, Tsitsikamma, the Karoo or the Kalahari. Its range extends north to Europe. It occurs



Threat	DBI
LC	2



along shallow rocky streams and pools in savanna and dry grassy montane areas where it darts swiftly over water or grassy areas, frequently returning to the same perch, which may be a stem, a boulder or the ground. On the wing from October to May, with occasional winter individuals.



Young male



Old male

- Medium-sized, almost entirely pale blue
- One side stripe
- A. One light side stripe
- B. Side stripe obscured by pruinescence

Body length: 42.0–45.5 mm

Hindwing length: 31–32 mm



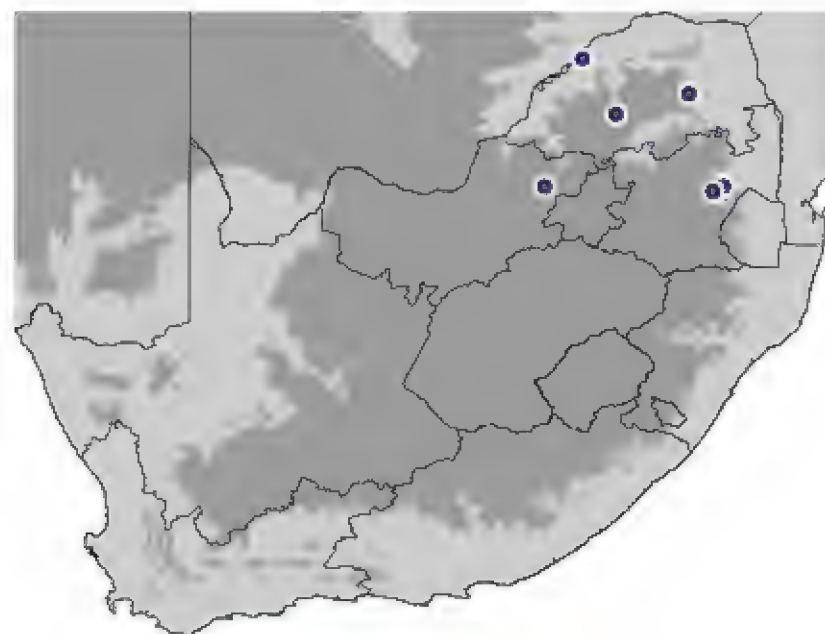
Guinea Skimmer

Orthetrum guineense Ris, 1910

Appearance: The Guinea Skimmer is medium sized to fairly large, slender and all pruinescent blue with dark, wedge-shaped shoulder stripes. Face is light greenish grey, spectaclled with fine cream lines. Labium pale yellow without dark median line. Labrum pale yellow. Head with small pointed conical peaks above. Eyes dark greyish turquoise, brown below. Thorax pruinescent dull blue with no side pattern, each shoulder with narrow, dark and sharply defined, wedge-shaped stripe that shows through pruinescence. Wings clear, becoming slightly smoky with age. Underside of antenodal crossveins and costa yellowish. Pterostigmas yellowish brown, fairly long (3.7 mm). Abdomen pruinescent blue.

Female: orange brown. Face and eyes light brown. Head shallowly dimpled with small peaks, shiny brownish black above, cream at sides and back. Thorax pale brown on sides with narrow, pointed, dark brown shoulder stripes and brown side stripe. Abdomen orange brown with very fine blackish line running the top length. Foliations small, yellowish with black margins.

Field notes: The Guinea Skimmer is highly localised above 700 m elevation in the northern provinces. It extends to central Africa. Its habitat is high elevation streams and fast rivers with marshy margins. It perches on the rocks or oc-

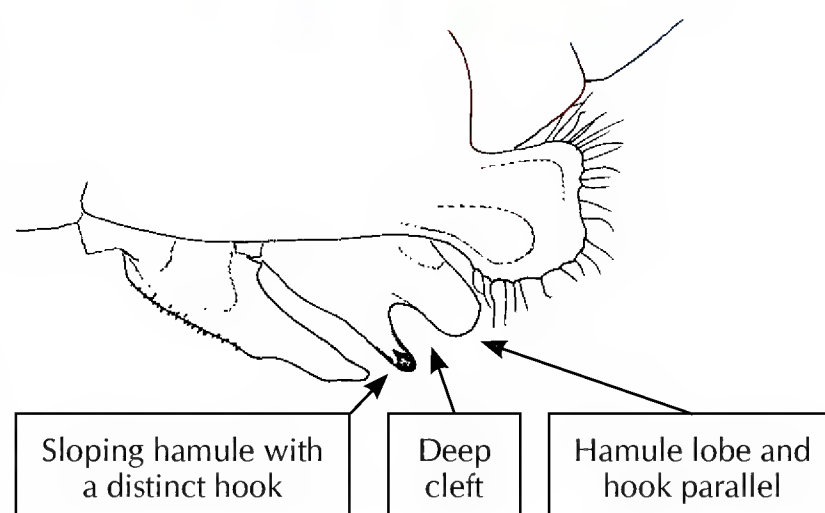


Threat

LC

DBI

4



casionally on twigs over the clear water, where it darts out and then returns to its perch. On the wing from December to April.



- Medium-sized, all pale blue
 - High elevation streams with rocks in northern provinces
- A. Thorax brownish with thin pruinescence
- B. Sharp, dark shoulder stripe

Body length: 41–45 mm

Hindwing length: 28–32 mm



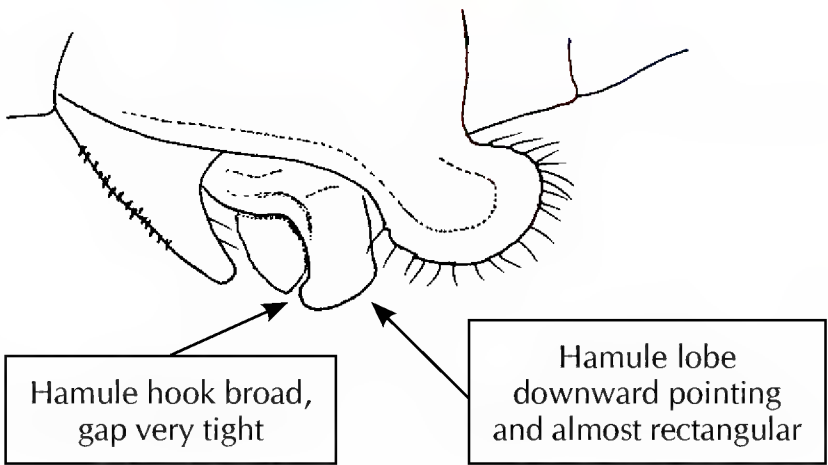
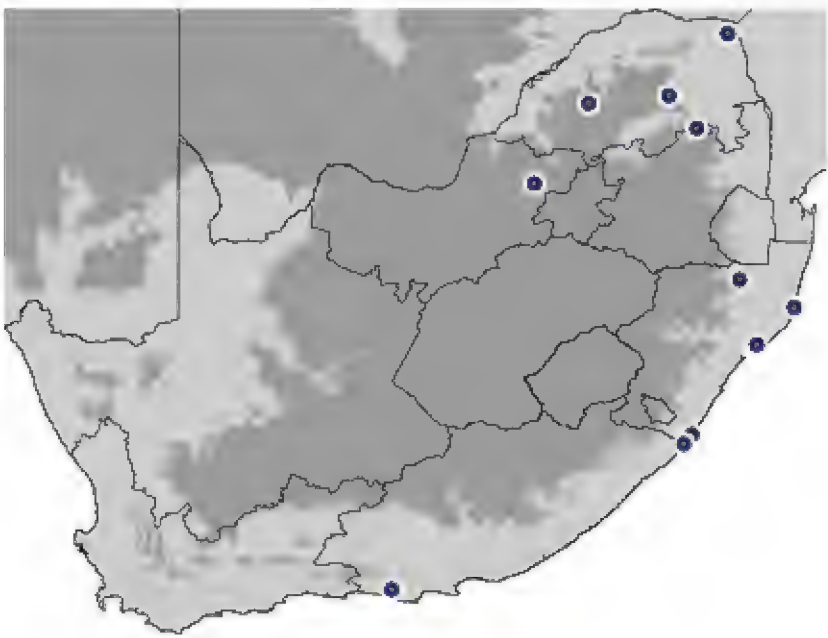
Dark-shouldered Skimmer (Hintz's Skimmer)

Orthetrum hintzi Schmidt, 1951

Appearance: The Dark-shouldered Skimmer is medium sized, fairly slender and all pruinescent blue. Face greyish. Labrum greyish cream with median dark brown band. Anteclypeus, postclypeus and side of frons light greyish cream. Frons not spectacled, bluish grey in front, black when viewed from above. Head shiny black and dimpled above with very low peaks. Eyes dull turquoise, greyish below. Thorax all pruinescent blue, slightly darker above. Wings clear to slightly smoky. Pterostigmas narrow, yellowish brown, 3.2–3.3 mm long. Abdomen narrow, all pale pruinescent blue.

Female: face and eyes light brown. Thorax sides all greenish yellow brown, wide dark brown shoulder stripe present. Bases of all four wings with small dark brown to orange splashes. Segments 1 to 3 mostly yellowish. Segments 4 to 8 yellowish and dark brown at sides. Segments 9 and 10 dark brown with yellowish spots. Foliations small, yellow with black edges.

Field notes: The Dark-shouldered Skimmer has been recorded in the Eastern Cape but it is more common in KwaZulu-Natal, North-West Province, Limpopo Province and Mpumalanga up to 800 m elevation and its range extends to Central Africa. It occurs in marshes and marshy regions of rivers. It has a fairly slow zigzag flight, fre-



quently returning to the same perch, usually a grass stem or reed close to the ground and not usually over the water. On the wing from November to April.



- All pruinescent pale blue
- A fairly small and slender skimmer
- Low, wasp-like flight

- A. Black nose
- B. Slender, pruinescent pale blue abdomen
- C. All pruinescent blue thorax

Body length: 37–38 mm

Hindwing length: 25–26 mm





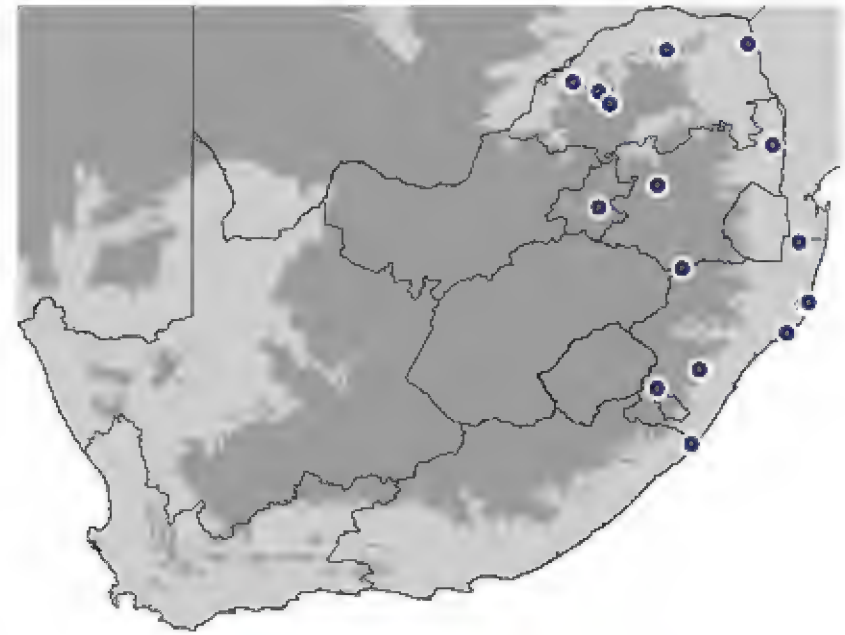
Spectacled Skimmer

Orthetrum icteromelas Ris, 1910

Appearance: The Spectacled Skimmer is medium sized, fairly slender and pruinose blue throughout. Face mostly grey. Labium cream with median dark brown line. Labrum cream with central grey area, blackish spearhead mark in middle. Anteclypeus, postclypeus and frons light greyish blue, edged with fine black lines. Frons strongly spectacled in black in front and above. Head strongly grooved, without peaks, black above. Eyes dark turquoise. Thorax pruinose greyish blue, with darker shoulder stripe which can become obscured with pruinescence. Wings clear to slightly smoky. Pterostigmas very long (4.1–4.5 mm), narrow, light yellowish brown with dark brown front margins. Abdomen slender, same greyish blue as thorax.

Female: slender, light yellowish brown and dark brown. Face light brown. Thorax strongly striped, almost gomphid-like. Abdomen with wide, dark stripe above. Segments 1 to 3 bulbous, with central, long dark stripe in side view. Segments 4 to 8 dark brown with long yellow side dashes. Segment 9 mostly dark brown, segment 10 yellow above. Foliations present, minute, scarcely noticeable.

Field notes: The Spectacled Skimmer occurs commonly in the eastern and northern regions of the country, up to about 1 100 m elevation. It extends to central Africa, as well as Madagascar and Mauritius. It occurs at shallow flooded pools and the flooded margins of rivers with an abun-

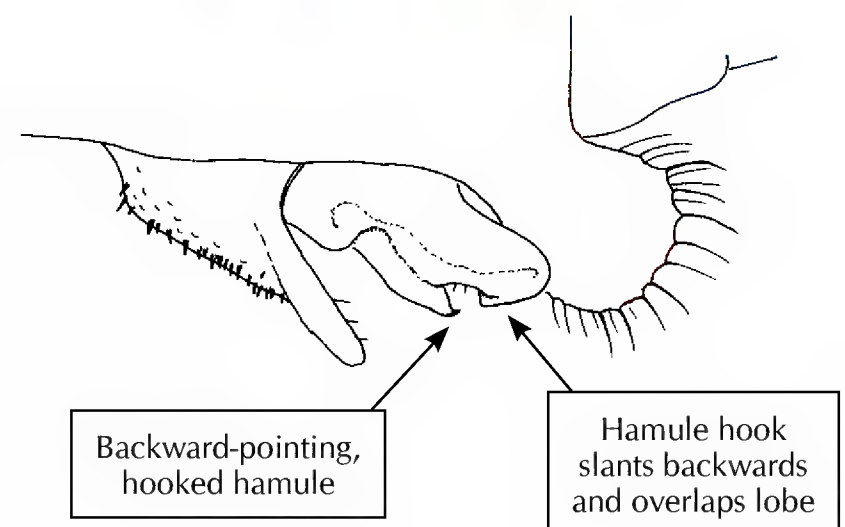


Threat

LC

DBI

2



dance of long, emergent grasses. It perches on grasses and reeds in shallow water, often darting out and returning to the same perch. It frequently takes other dragonflies as prey, some being as large as itself. On the wing from October to May.



- Medium sized, all pale blue and slender
- Face with distinct spectacles

A. Nose pale, and face with distinct spectacles
B. Long pterostigmas

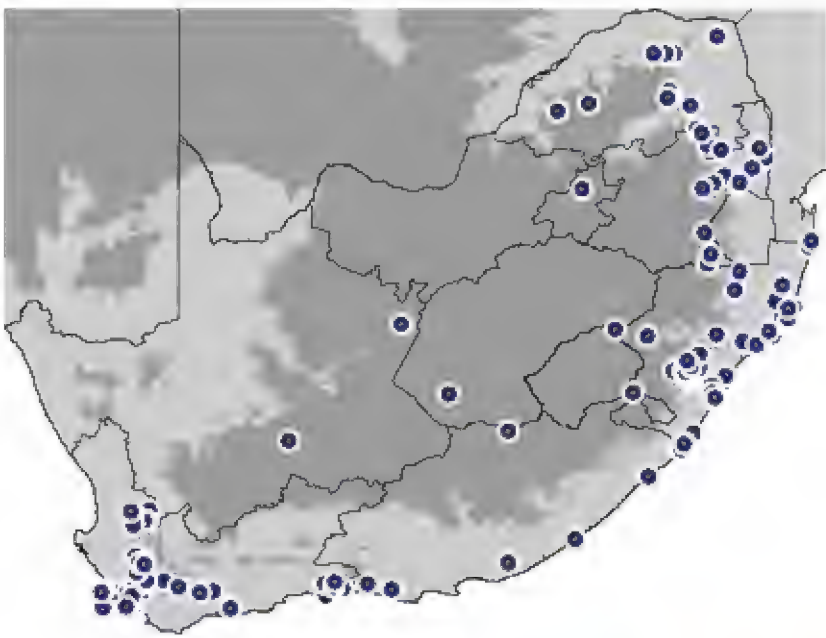
Body length: 43.0–44.5 mm

Hindwing length: 28–29 mm

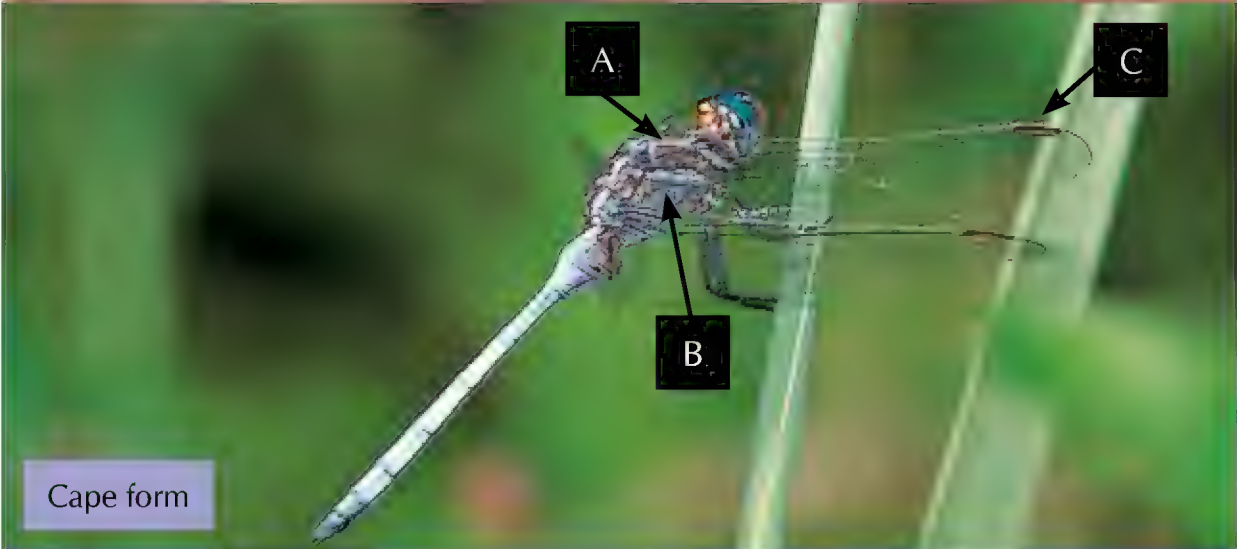
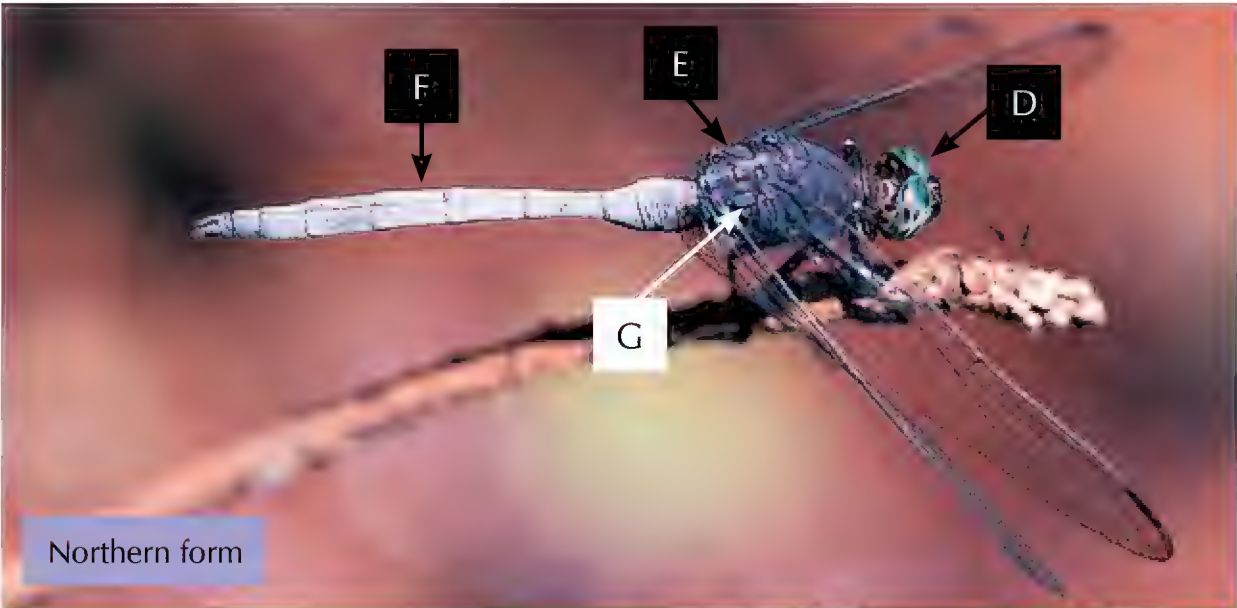
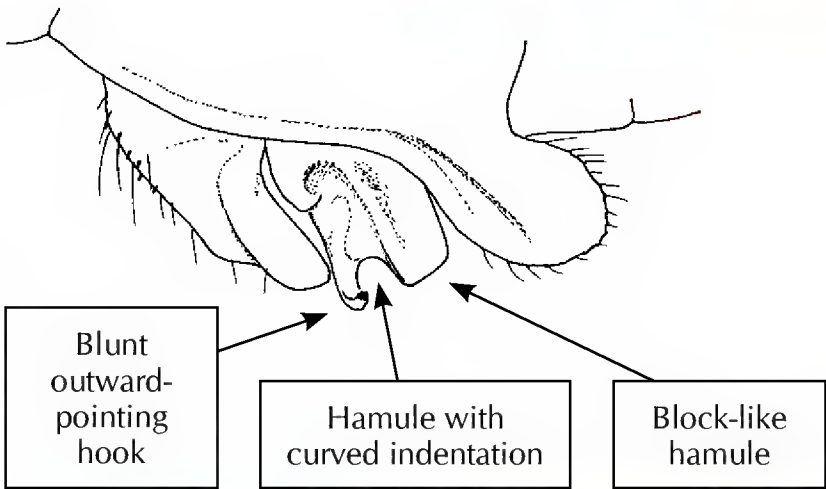
Julia Skimmer

Orthetrum julia Kirby, 1900

Appearance: The Julia Skimmer has two forms: the northern form and the Cape form. It is fairly large and robust with a brownish to bluish, weakly mottled and striped thorax, and a light blue abdomen. Face light grey. Labium cream with central dark brown spear shape that reaches front margin in the northern form but not in the Cape form. The labrum is light grey with a black edge in the northern form or all cream in the Cape form. Anteclypeus and postclypeus light bluish grey. Frons mid greyish blue, becoming blackish on top, finely spectacted in white. Head black above, dimpled and with no groove between two sharp peaks. Eyes dark turquoise. Thorax mottled brownish with blue pruinescence, bluish green shoulder stripe present, thorax can become all pruinescent blue in individuals occurring in swamp forests of northern KwaZulu-Natal; thorax lighter in Cape form with two light greyish blue side stripes, which are not pruinescent. Long pruinescent stripe present between wing bases. Wings clear, becoming smoky with age, especially at tips. Small dark brown splashes present at bases of the wings, especially hindwings. Pterostigmas blackish brown to black in the northern form, reddish brown in Cape form (3.1–3.5 mm long). Abdomen of medium build, all pruinescent blue.



	Threat	DBI
Julia Skimmer (northern form)	LC	1
Julia Skimmer (Cape form)	LC	3



- Light blue abdomen
- Thorax brownish with blue pruinescence
- Two side stripes (in Cape form, only one of which is strong)
- Long stripe between wings
- Pterostigmas generally black, brown in the Cape form

- A. Faint shoulder stripe
- B. Main side stripe
- C. Light brown pterostigmas
- D. Mottled eyes
- E. Pruinescent long stripe
- F. Light blue abdomen
- G. Thorax mottled brownish with blue pruinescence

Body length: 45–49 mm

Hindwing length: 31–36 mm



LIBELLULIDAE (Skimmers)



Female: striped all light and dark brown, tends to be pinkish in Cape form. Foliations strong, black. Thorax heavily striped all over in northern form. Segments 1 to 6 alternately striped, segments 7 to 10 almost entirely blackish. Wings clear to heavily smoky in some old individuals of Cape form. Pterostigmas similar to male's.

Field notes: The Julia Skimmer occurs throughout much of South Africa although scarce in the Northern Cape and North-West Province. It occurs throughout southern Africa, parts of West and

East Africa and the southern margins of North Africa. The northern form occurs in dappled shade in thick bush or forest over pools or still reaches of rivers. It also often occurs in gardens and along hedgerows. The Cape form prefers more open habitats, even large treeless pools, and still reaches of rivers. It is conspicuous as it perches in woodlands, forests or gardens, darting fast after prey or to chase an intruder. It generally perches conspicuously over water. Females commonly enter houses. On the wing all year but most common in summer.

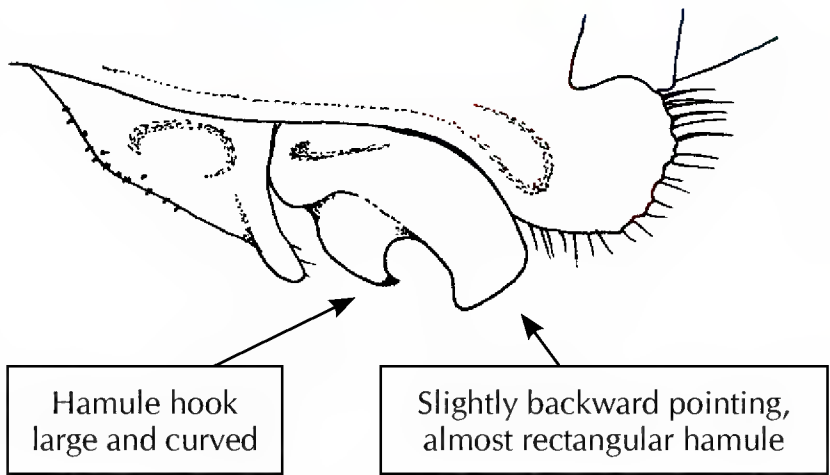
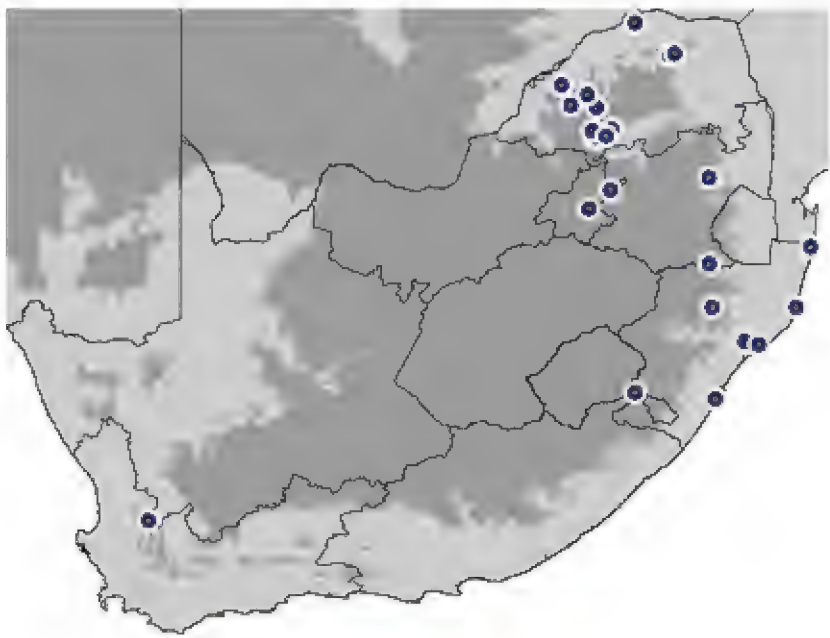
Highland Skimmer (Machado's Skimmer)

Orthetrum machadoi Longfield, 1955

Appearance: The Highland Skimmer is medium sized, fairly robust and all pruinulent blue. Face light greyish blue. Labium greyish cream with or without dark median band. Anteclypeus and postclypeus light grey. Frons light to mid grey, with hint of being spectacled, also with diffused dark area where frons meets eyes. Head dimpled above, shiny black with low peaks and no groove. Eyes dull turquoise. Thorax fairly deep pruinulent blue, sometimes with lighter pruinulences making up a side stripe, in most individuals the blue is more or less even across the thorax although a lighter area forms a diffuse stripe along top between wings. Wings clear to slightly smoky. Pterostigmas yellowish brown with dark anterior margin, of moderate length (3.4–3.6 mm). Abdomen fairly slender, pale pruinulent blue.

Female: all light yellowish to greenish brown. Thorax relatively unmarked except for wide brown shoulder stripe composed of dark outer margin and lighter inner one, a distinct pale line runs along top of thorax between wings. Wings slightly smoky. Abdomen yellowish brown with fine dark stripe running along length of top and dark brown side stripe. Small foliations present on segment 8.

Field notes: The Highland Skimmer is a localised species with one Western Cape record and various scattered records throughout the northeastern



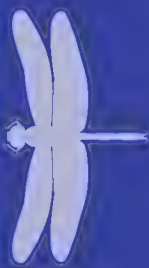
and northern parts of South Africa. It extends north to West Africa and to Ethiopia. It occurs in marshy grassland, shallow grassy swamps and grassy flooded margins of rivers where it perches on grasses and sedges, darting out and then returning to its perch. On the wing from September to April.



- All blue
 - Usually in open marshy or swampy areas
 - Note shape of hamules
- A. Light grey top of nose
- B. Pterostigmas yellowish brown with dark front margins

Body length: 37.5–41.0 mm

Hindwing length: 28–30 mm



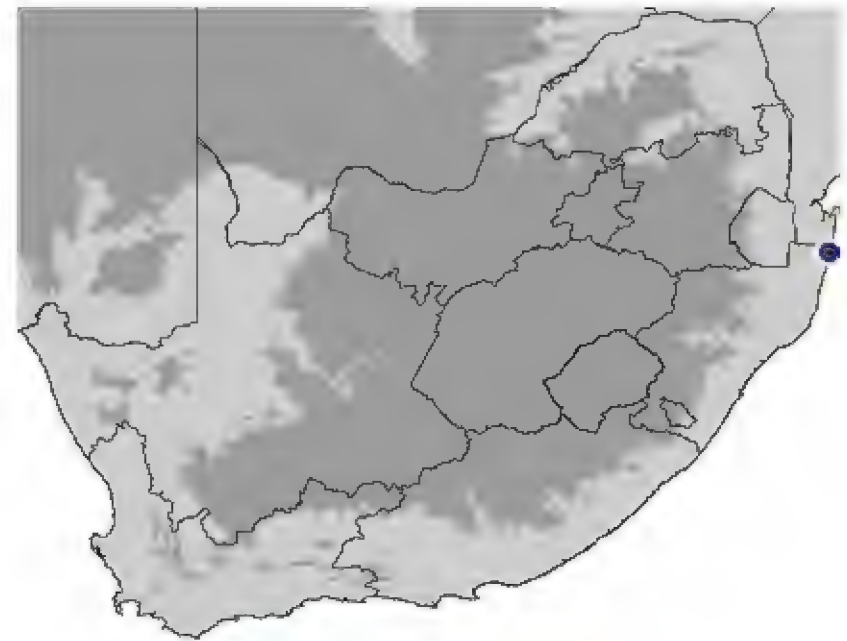


Woodland Skimmer

Orthetrum monardi Schmidt, 1951

Appearance: The Woodland Skimmer is small to medium-sized, dull brown and pale blue with short pterostigmas. Face dull brown, slightly bluish above, dark brown on sides. Top of head dark brown, dimpled; low peaks on head. Eyes greyish blue, striped cream and dark brown at back. Thorax all brown, with only fine dark brown lines on shoulders. No pale side stripes. Wings clear, with some smokiness at bases, and cream costas. Pterostigmas very short, 2.0–2.8 mm long, light brown between blackish brown veins. Abdomen slender, all pruinescent pale blue. Female all greyish dull brown, with faint, dark side stripes and abdominal rings.

Field notes: Only recorded to date from northern KwaZulu-Natal. Extends to East and West Africa. Prefers swampy areas in savanna trees or woodlands. Perches on stems and reeds. On the wing from November to April.

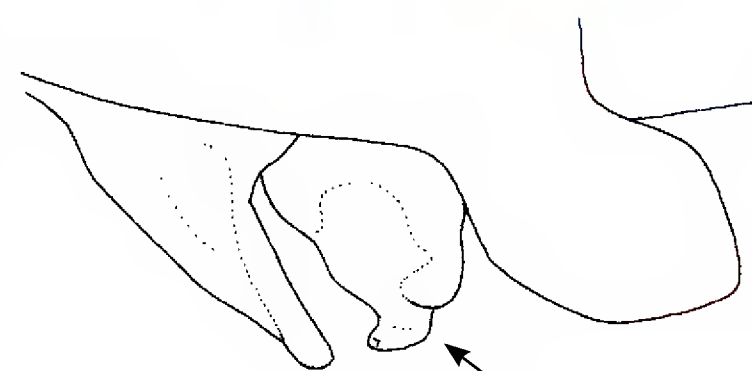


Threat

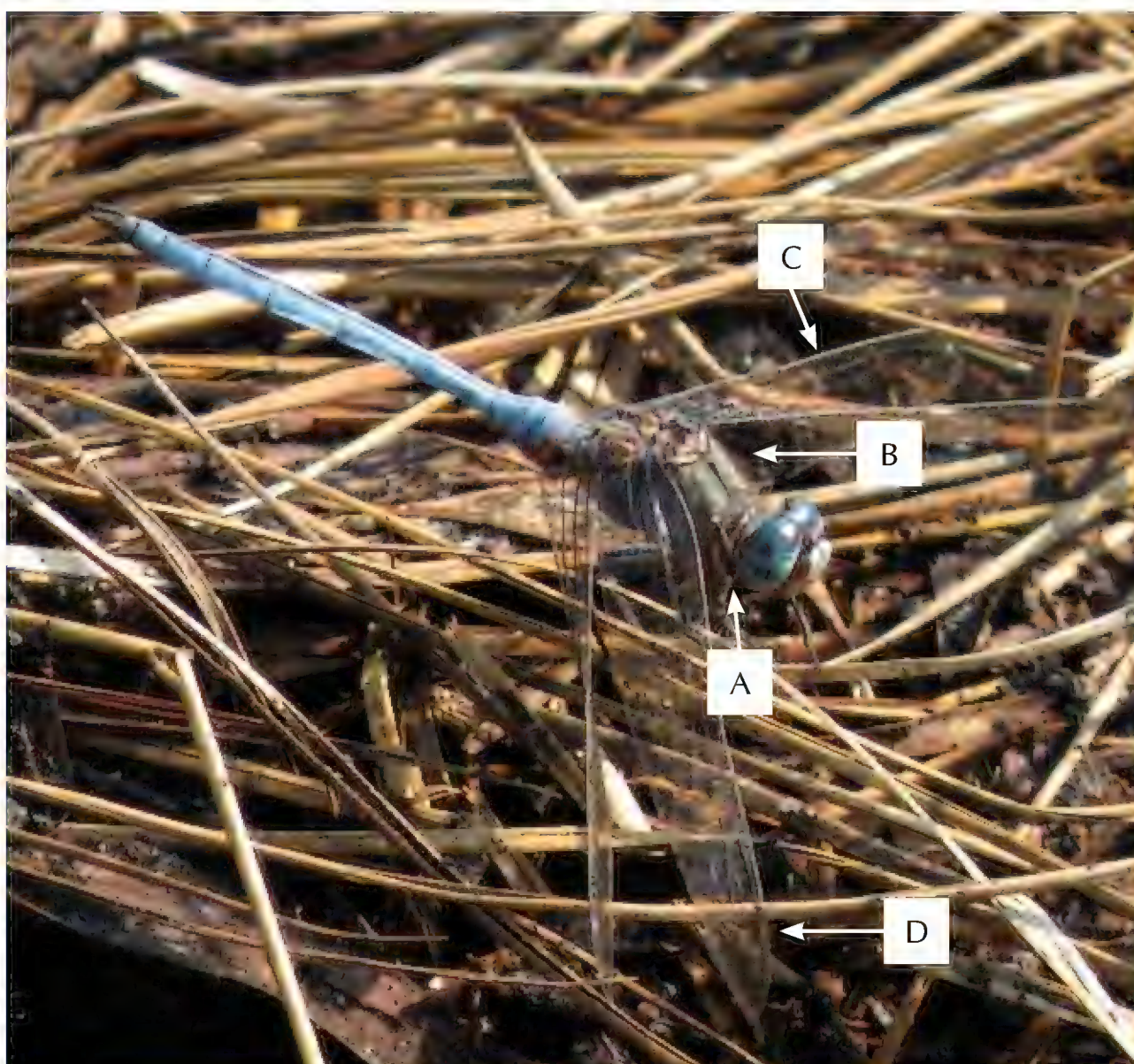
LC

DBI

4



Hamule hook bent forward



- A small skimmer
- Very short pterostigmas
- Thorax mixed browns

- A. Back of eyes striped brown and cream
- B. Thorax mixed browns
- C. Leading edge cream
- D. Pterostigmas very short

Body length: 35–38 mm

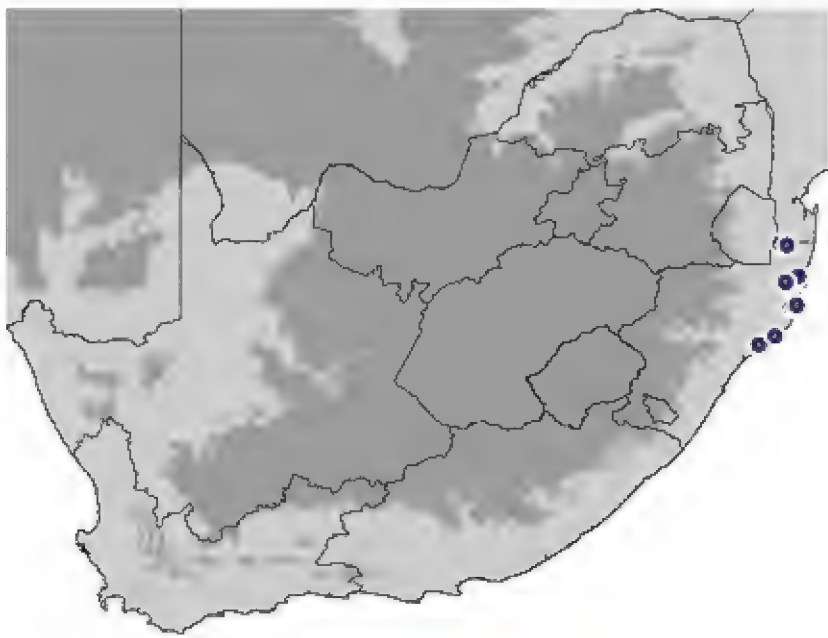
Hindwing length: 25–31 mm

Robust Skimmer

Orthetrum robustum Balinsky, 1965

Appearance: The Robust Skimmer is large, strongly built, with a bluish brown thorax and blue pruinescent abdomen. Face mostly light bluish grey. Labium dull yellow with dark brown central marking not quite reaching anterior margin. Labrum dull yellow. Anteclypeus, postclypeus and front of frons light bluish grey, not spectacled. Sides and top of frons adjacent to eyes dark brown. Head dimpled above, black with two small sharp peaks, without groove. Eyes light greenish grey. Thorax indistinctly marked, light bluish grey on top, light brown and dark brown at sides with some thin pruinescence giving it a bluish hue. Wings clear to slightly smoky. Pterostigmas yellowish brown with dark brown anterior margins, 4.2–4.4 mm long. Abdomen all pale pruinescent blue. Female indistinctly marked, light and dark brown, wings slightly smoky, foliations small yellowish brown bordered in dark brown.

Field notes: The Robust Skimmer occurs in coastal northern KwaZulu-Natal up to 100 m elevation. It has also been recorded in Botswana and Zambia. It frequents open pools and natural dune lakes with margins of grasses, sedges and low reeds. It is conspicuous when perched on reeds at the water’s edge, darting out and returning to the same perch. On the wing from December to March.

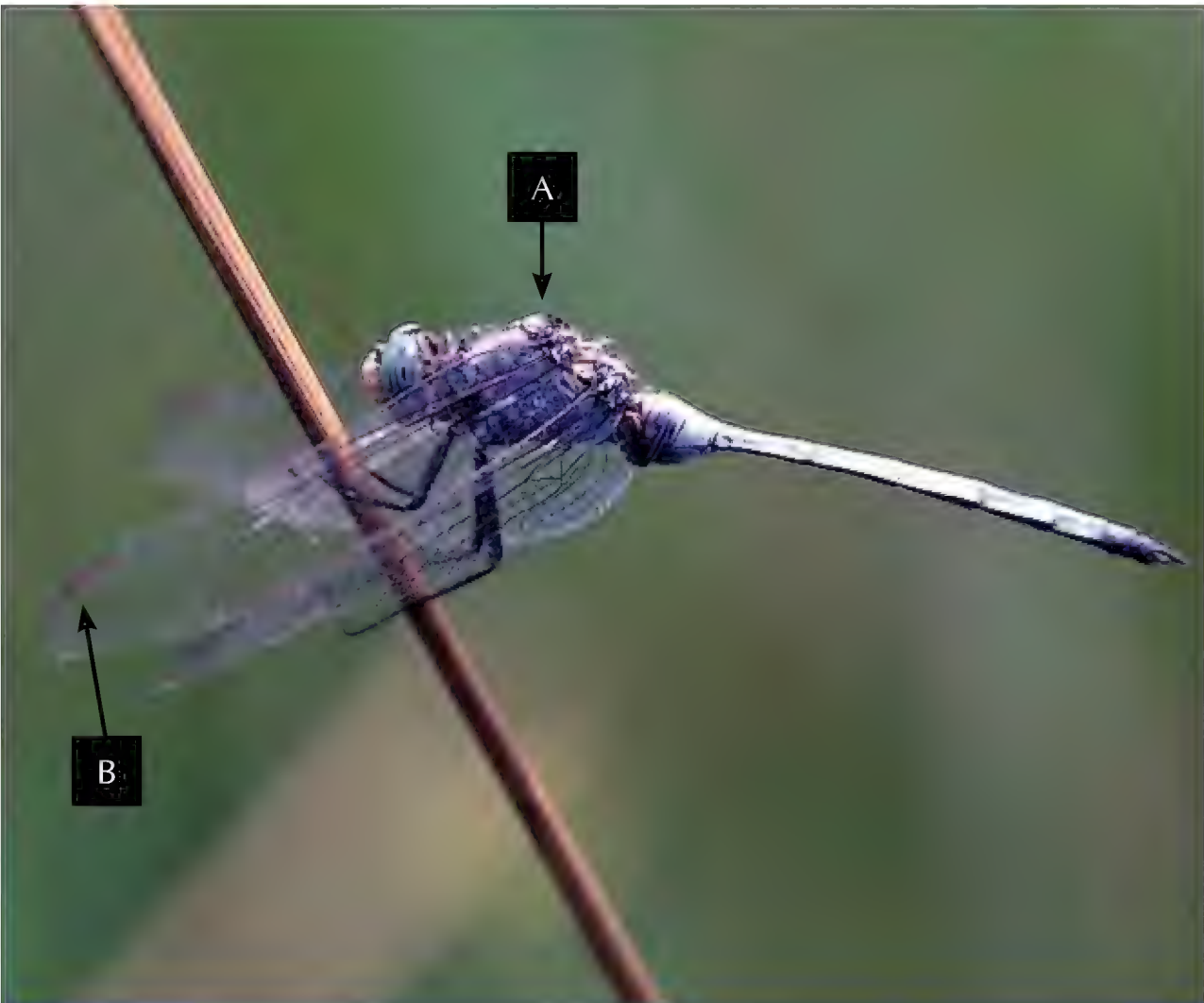
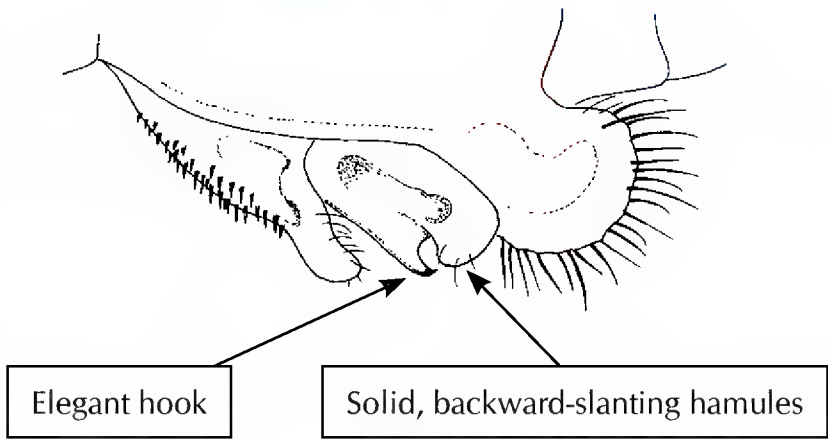


Threat

LC

DBI

5



- A large and robust skimmer
 - All more or less bluish grey
 - Northern KwaZulu-Natal
- A. Thorax indistinctly marked, brownish, with thin pruinescence
- B. Pale pterostigmas

Body length: 53–57 mm

Hindwing length: 38–40 mm



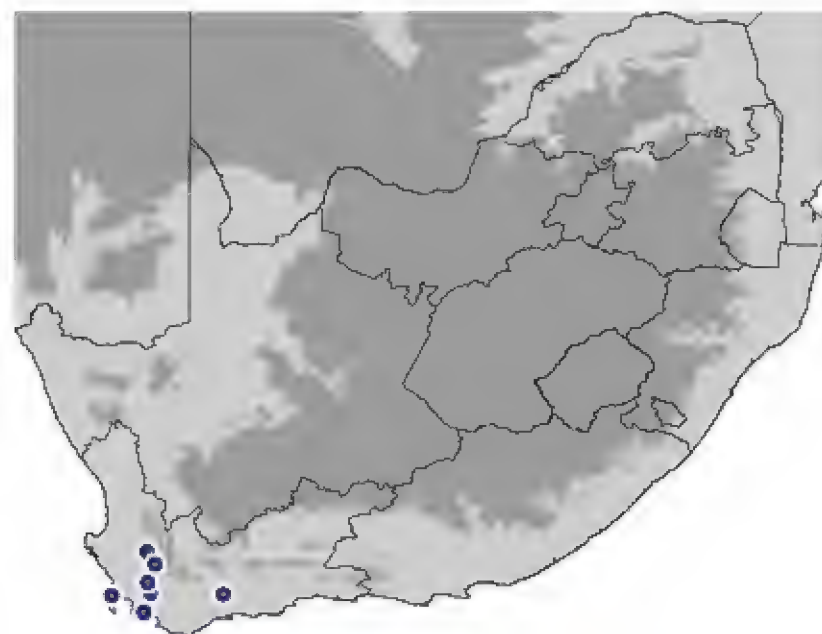


Elusive Skimmer

Orthetrum rubens Barnard, 1937

Appearance: The Elusive Skimmer is medium sized, pale blue with a buff and red thorax, distinctly striped, and with slightly smoky wings. Face light reddish and yellowish brown, top of head shiny black. Eyes bluish grey. Thorax red at sides with two distinct diagonal black and white stripes, broken light yellow stripe runs along top of thorax, shoulder light yellow with dark, central stripe and two fine outside shoulder stripes. Wings, especially tips and leading edges, slightly smoky brown. Bases of all wings with small orange flares. Venation very fine and net-like, particularly at tips. Leading edges of all wings distinctly yellowish. Pterostigmas deep yellowish, 3 mm long. Abdomen of moderate thickness, pale blue, darkening at tip, base with yellowish spots at side and on top. Female similar, brownish, with more extensive basal wing patches and yellowish marks on segments 9 and 10, two diagonal and bicoloured thoracic side stripes conspicuous.

Field notes: The Elusive Skimmer is a highly threatened and restricted species that is only known from the mountains of the Western Cape. Its habitat is upland marshes at about 1 200 m elevation, although it may have occurred at lower elevations before damming and marsh conversion. Originally discovered on top of Table Mountain, it has not been seen there for many years. Recorded as on the wing from late October to February.

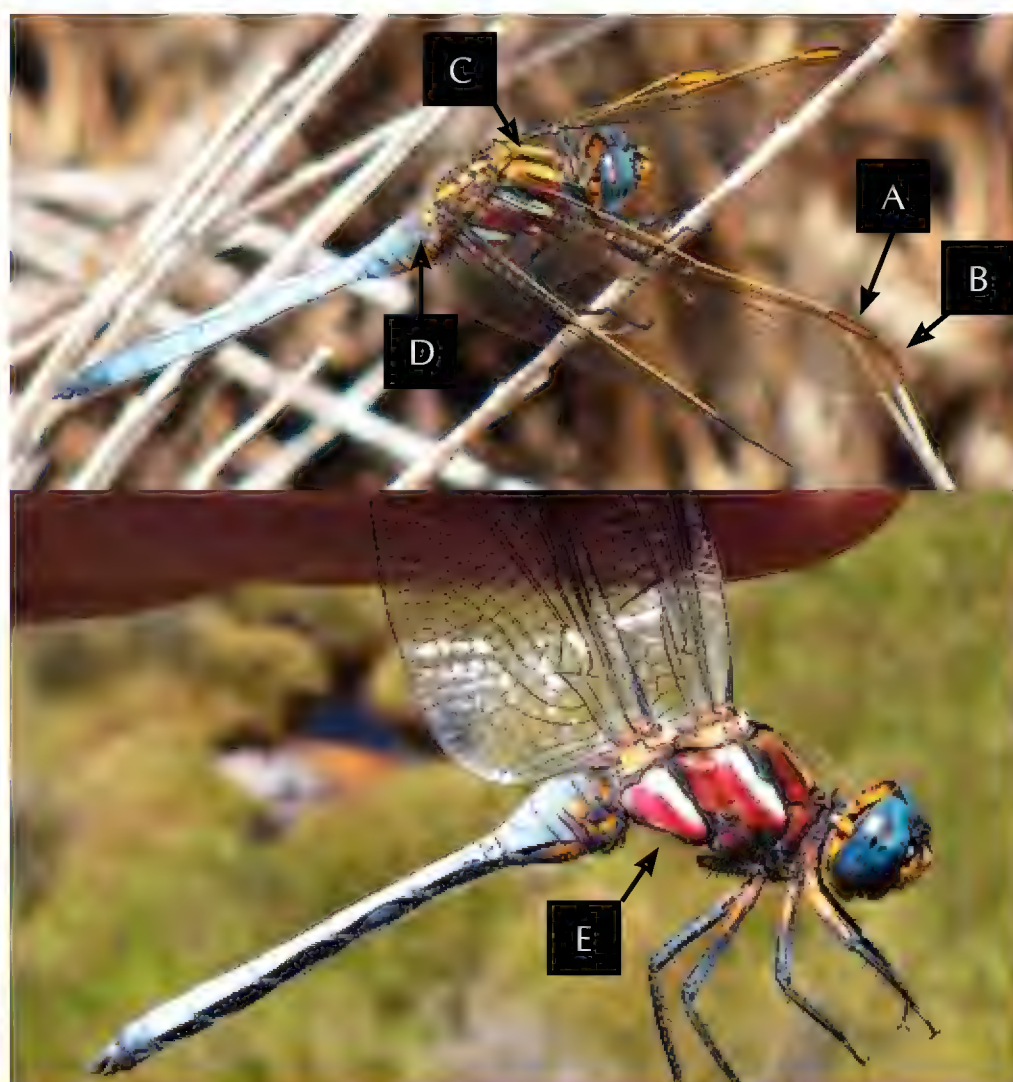
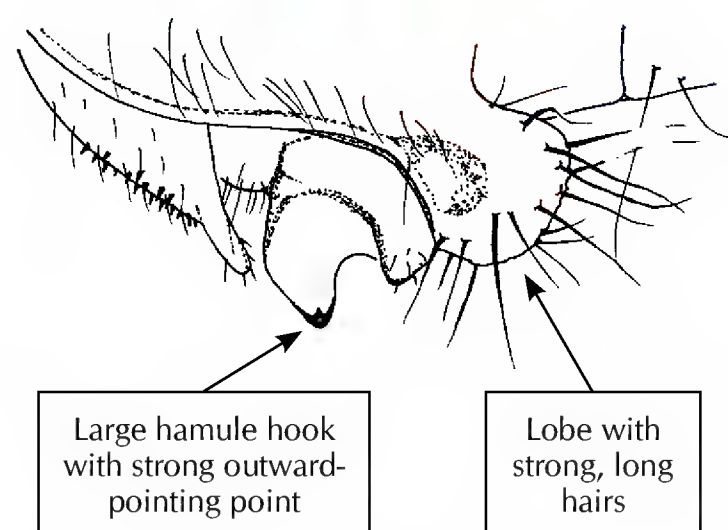


Threat

EN

DBI

9



- Extremely rare and threatened
- Body yellowish and reddish brown
- Strongly striped thorax
- Yellowish pterostigmas

- A. Pterostigmas yellowish
 B. Wing tips smoky, with net-like veins
 C. Strongly striped thorax
 D. Yellowish brown
 E. Red side to thorax with strong black and white stripes

Body length: 39–40 mm

Hindwing length: 29–31 mm

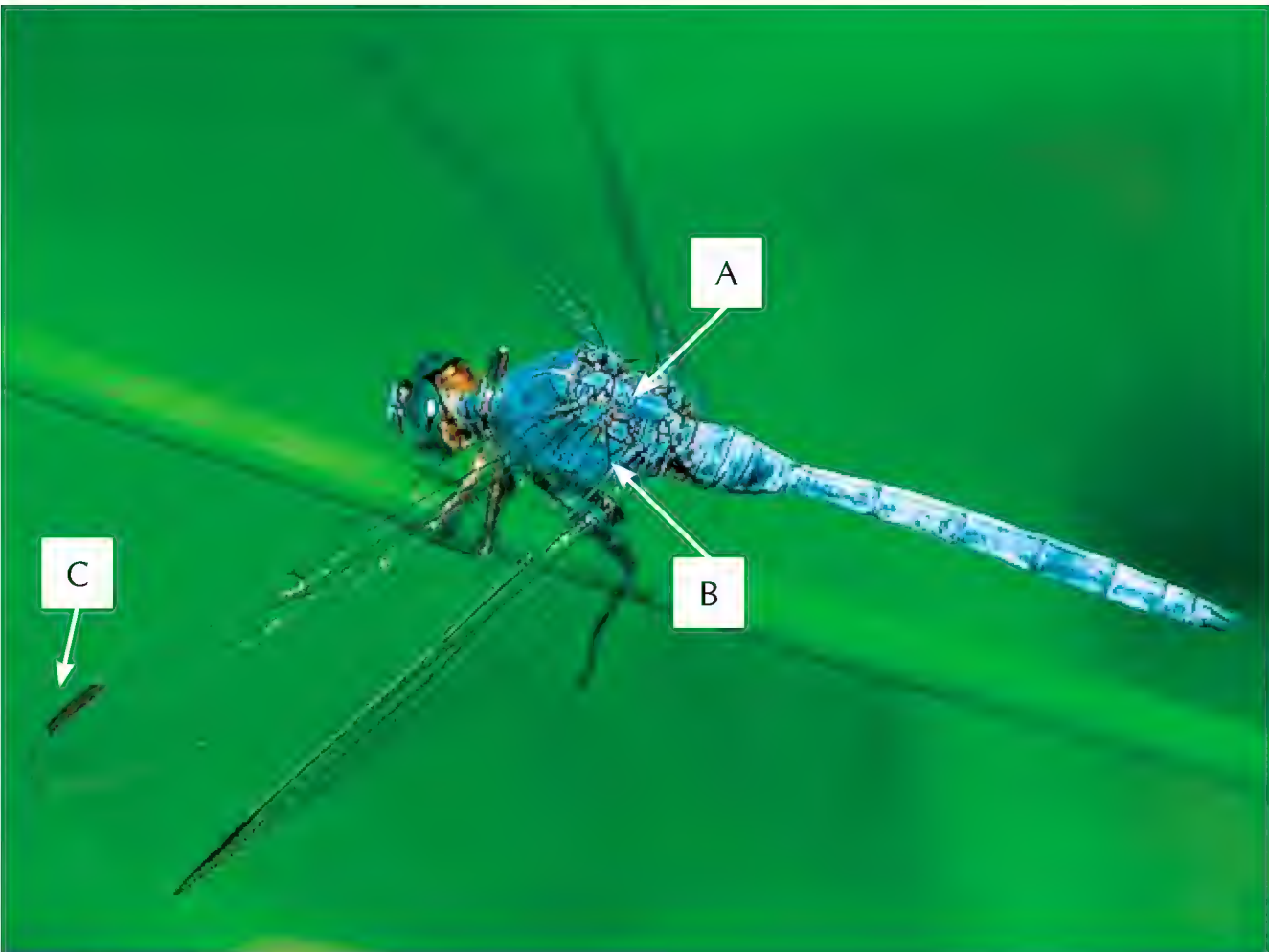
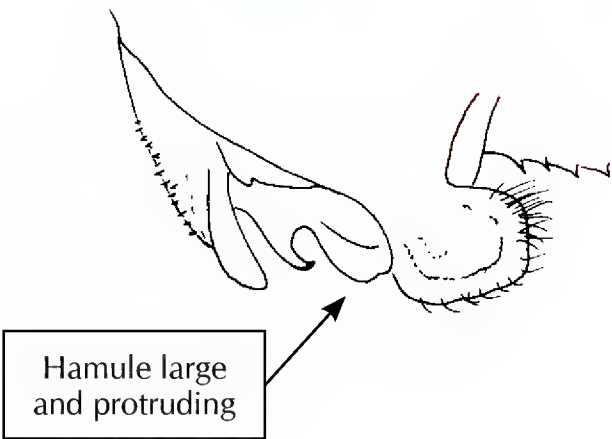
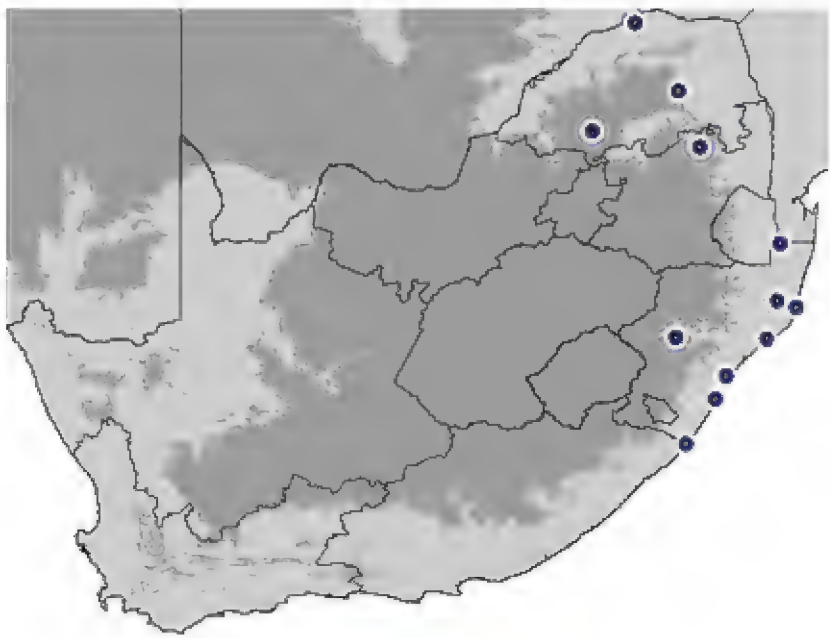
Bold Skimmer

(Strong Skimmer)

Orthetrum stemmale (Burmeister, 1839)

Appearance: The Bold Skimmer is fairly large, robust and pruinulent greyish blue. Face cream to greyish. Labium light greyish cream. Labrum cream. Anteclypeus and postclypeus light grey. Frons greyish, frontal area raised with spectacles outlined in light grey. Head dull black and dimpled with strong peaks above. Eyes dull turquoise, becoming brown below. Thorax mostly dark pruinulent grey with no stripes, shoulder dark brown with lighter brown stripe showing through pruinulence, light grey pruinulent stripe runs along top between wings. Wings clear, becoming smoky with age. Pterostigmas deep yellowish brown becoming darker brown towards front, 3.7 mm long in forewing, 3.9 mm long in hindwing. Costa yellow. Abdomen pale pruinulent blue. Female thorax greenish brown with fuzzy blackish lateral lines, abdomen yellowish brown with fine blackish line along top and at sides, small dark brown foliations present.

Field notes: The Bold Skimmer is highly localised from KwaZulu-Natal northwards to the Limpopo Province. It extends to central Africa and some Indian Ocean Islands. Its habitat is marshy edges of streams and more extensive marshy areas in bushy savanna. It has a strong darting flight, frequently returning to perch, often away from the water on tall grass stems among bushes. On the wing from December to May.



- Large, robust all pruinulent greyish blue
- A. No creamish or light line
- B. No side stripes
- C. Deep yellow brown pterostigmas with dark front margin

Body length: 47–49 mm

Hindwing length: 35–36 mm





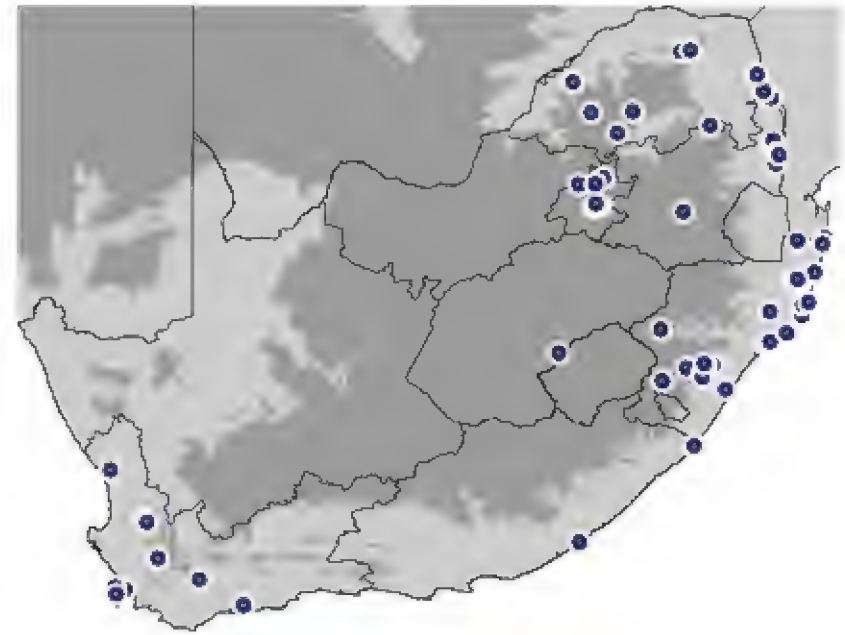
Long Skimmer

Orthetrum trinacria (Sélys, 1841)

Appearance: The Long Skimmer is large and slender, all deep pruinulent blue, with yellow dashes along the top of the abdomen. Face mostly light bluish grey. Labium dull yellow with indistinct median brown patch that does not reach front margin. Labrum dull yellow. Anteclypeus and postclypeus light bluish grey, spectacled with fine ridge and black median line. Frons blackish next to eyes. Head dimpled above, shiny dark brown with sharp peaks. Eyes turquoise with yellow hind margin. Thorax brown all over, sutures finely outlined in black, shoulder stripes distinctly narrow and dark brown, this patterning becomes obscured quickly with deep blue pruinescence, but dark shoulder stripes and line in middle at top remain visible. Neck and front of thorax with long white hairs. Wings clear. Pterostigmas very long (4.3–4.4 mm), narrow, pale yellowish brown. Abdomen long and slender, blackish above with yellowish to light brown pairs of dashes along its length, becoming increasingly blue and then grey with age. Segment 3 always heavily pruinescent.

Female: light greenish yellow with dark brown stripe running along front and top of thorax and along top of abdomen, narrow dark brown shoulder stripes present, cream stripe present along wing bases, side of thorax with only darkening of sutures, foliations absent.

Field notes: The Long Skimmer occurs throughout much of South Africa, but it is largely absent from Tsitsikamma and the Karoo. Its range extends north to Europe. Its habitat is shallow pans, pools and grassy margins of lakes and dams. In



Threat

LC

DBI

1



Solid hamule with tiny spine on hind margin

the Cederberg, it occurs along the grassy margins of streams. It is a strong flyer at the water's edge and over marshy areas where it frequently perches on reeds or stems, usually over the water. Often preys on large insects including butterflies and other dragonflies. On the wing from November to May.



- Large, long and dark blue
- Abdomen with yellowish light brown dashes becoming greyish with age

- A. Pterostigmas long and pale
- B. Dark blue thorax with dark, sharp shoulder stripes
- C. Black abdomen with light brown dashes

Body length: 53–58 mm

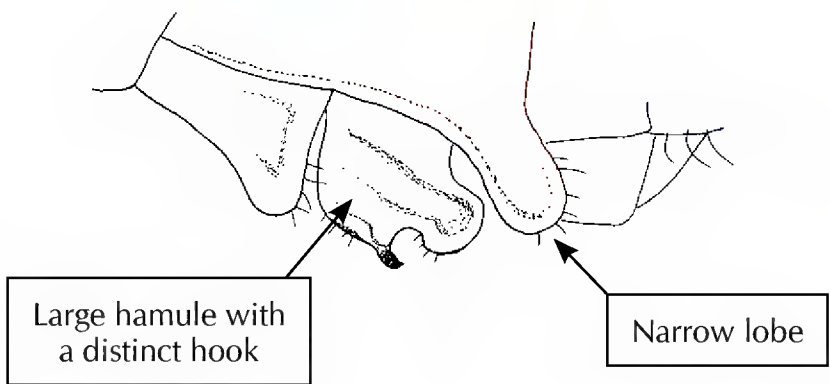
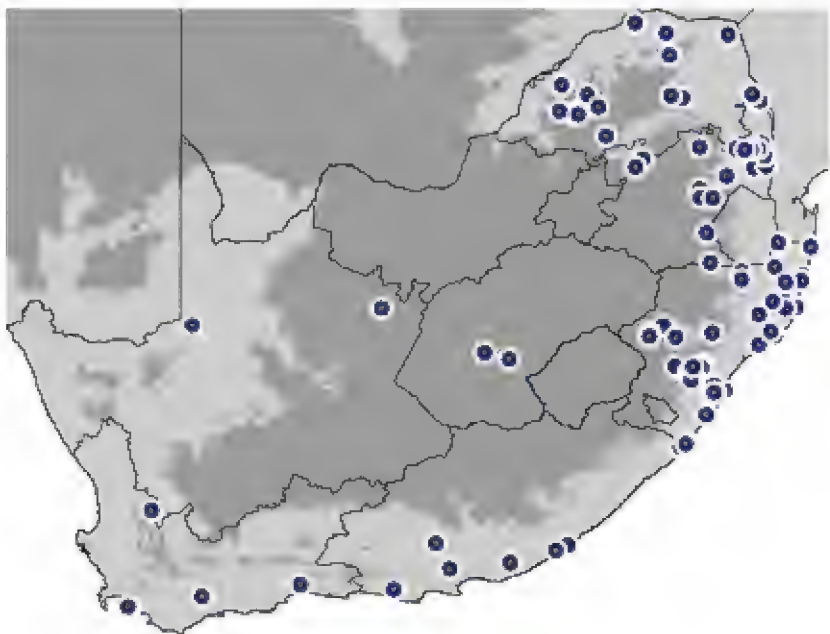
Hindwing length: 35–37 mm

Eastern Blacktail (Black-tailed Skimmer)

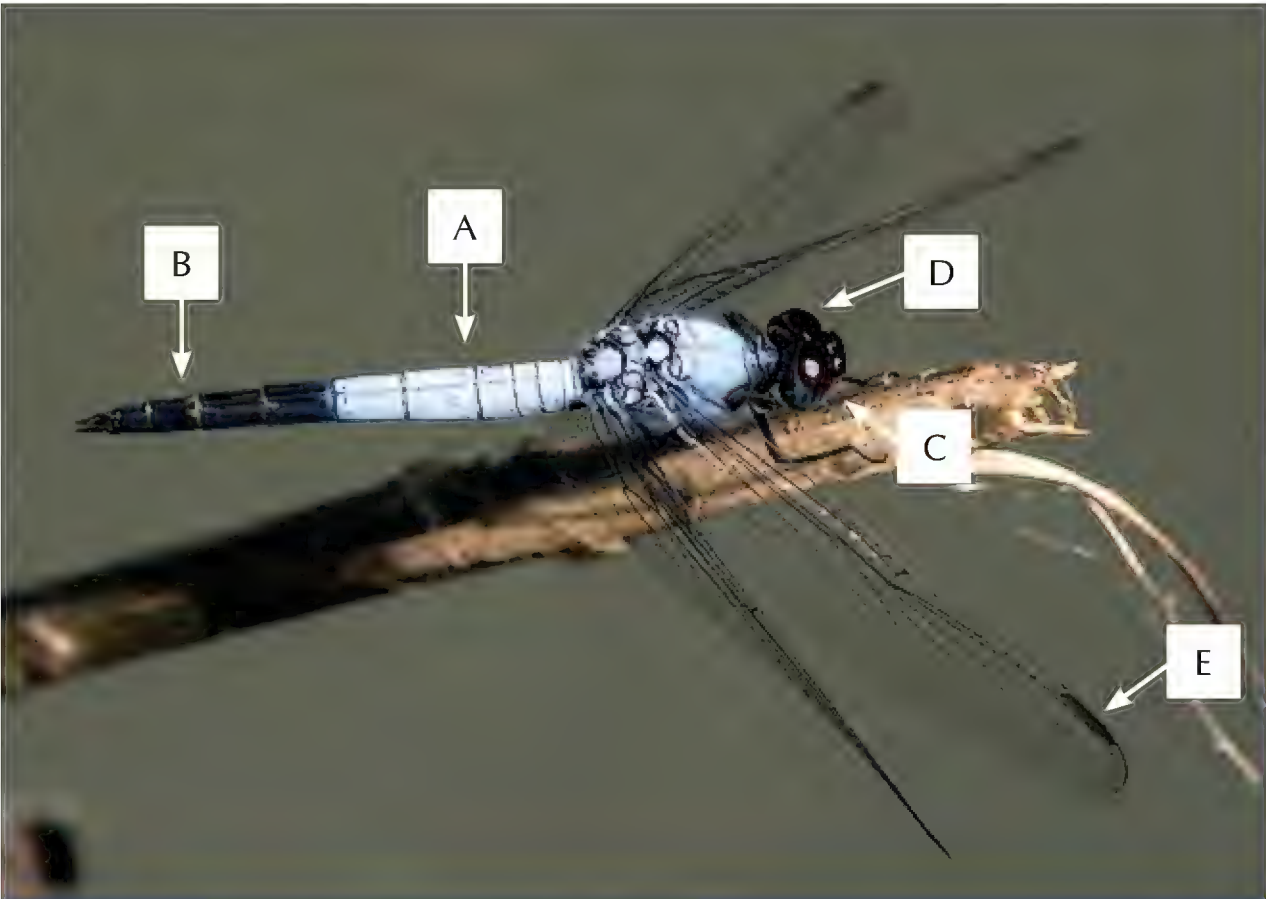
Nesciothemis farinosa (Förster, 1898)

Appearance: The Eastern Blacktail is medium sized to fairly large and robust, strikingly black-headed, pale powdery bluish grey, and with the rear of the abdomen black. Face light brown below, dark brown above. Labrum dark brown with deep yellow margin. Anteclypeus, postclypeus and lower frons mottled light grey to dark brown. Frons shiny black and dimpled on top. Head dull black above, dimpled with minute peaks. Eyes deep brownish black above, dark grey below. Thorax covered with dense, pale bluish grey pruinescence. Wings clear to slightly smoky becoming smokier with age, especially at tips. Pterostigmas deep yellowish brown, 4.2–4.5 mm long. Abdomen straight, pointed. Segments 1 to 5 with dense pale bluish grey pruinescence. Segments 6 to 10 black with faint yellow markings above.

Female: light and dark yellowish brown. Face all light brown. Thorax light brown on sides, dark brown above. Distinctive cream line runs all the way along neck and over thorax between wing bases to base of abdomen. Wings clear with very dark tips in young individuals, can become smoky all over with age. Abdomen light yellowish brown with strong dark brown line running along each for its entire length. Segment 8 with distinct but small yellowish foliations with dark brown margins.



Field notes: The Eastern Blacktail occurs throughout much of South Africa but is particularly common in northern KwaZulu-Natal. It occurs mostly at low elevations but sometimes reaches 1 200 m elevation. It frequents pools, pans and especially sluggish reaches of rivers with an abundance of reeds and tall grasses. Range extends northwards to Arabia.



- Very pale blue and black
- Dark head
- A. Pale blue pruinescence
- B. Black tail
- C. Eyes deep brownish black
- D. Top of head black
- E. Pterostigmas long, deep yellowish brown

Body length: 40–46 mm

Hindwing length: 30.5–35.0 mm



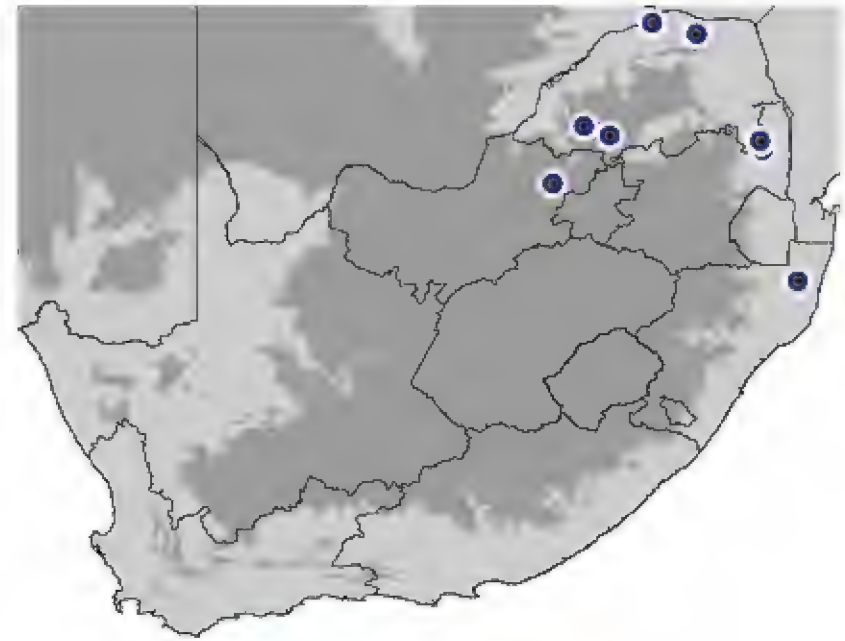


Deceptive Widow

Palpopleura deceptor (Calvert, 1899)

Appearance: The Deceptive Widow is small and pale pruinose blue with a black abdominal tip, and a blackish streak and dark nodal spot on each forewing. Face all light grey. Labrum cream with dark brown margin. Frons black above with bright metallic blue sheen. Head shiny black and dimpled with two small ridge-like peaks above, brown with long fine white hairs behind. Eyes dark brownish grey above, bluish grey below. Thorax pale pruinose greyish blue above, sides yellowish green with regular dark brown spots. Wings mainly clear with smoky patches along anterior margin of forewing and faintly on anterior margin of hindwing, tips smoky, forewing with black streak at base reaching halfway to nodus, dark spot around nodus. Antenodal area at base of hindwing darkened. Pterostigmas strikingly dark brown with cream centre, 4 mm long. Abdomen short (18.5–19.0 mm), pruinose pale greyish blue. Pruinoscence thins out on segment 7 with underlying black visible on segments 8 to 10. Female: face pale yellowish green, thorax yellowish with similar marks but dark above, wing markings similar but less extensive, abdomen yellowish brown with dark dorsal and side lines.

Field notes: The Deceptive Widow has only been recorded from a few localities in the northern part of South Africa. Its range extends to Central Africa and Somalia. Its habitat is clear, shallow pools, and margins of dams with an abundance

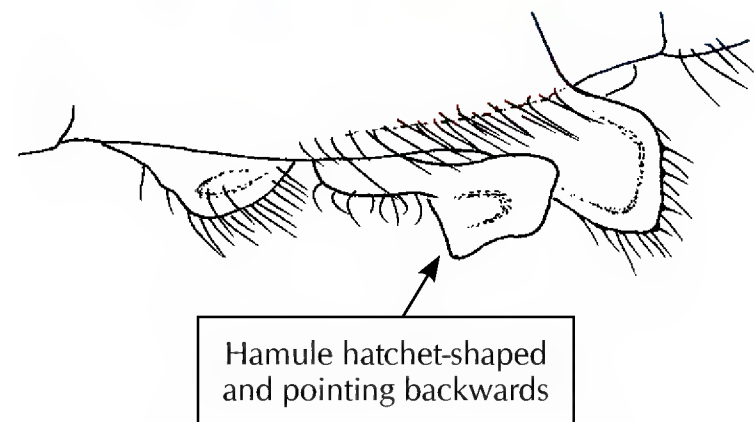


Threat

LC

DBI

4



of tall grasses and reeds in hot open savanna. It has a darting flight, but instantly returns to a reed perch over the water. Females are rarely seen, and most of the time observed away from the water. On the wing from December to April.



- Small in size
- Mostly pale blue
- Leading edge of forewing coloured
- Pterostigmas bicoloured

- A. Dark brown pterostigma with white centre
- B. Dark brown nodus
- C. Yellowish green side with brown spots
- D. Dark tail tip
- E. Pale blue pruinose abdomen

Body length: 29–31 mm

Hindwing length: 24.0–24.5 mm

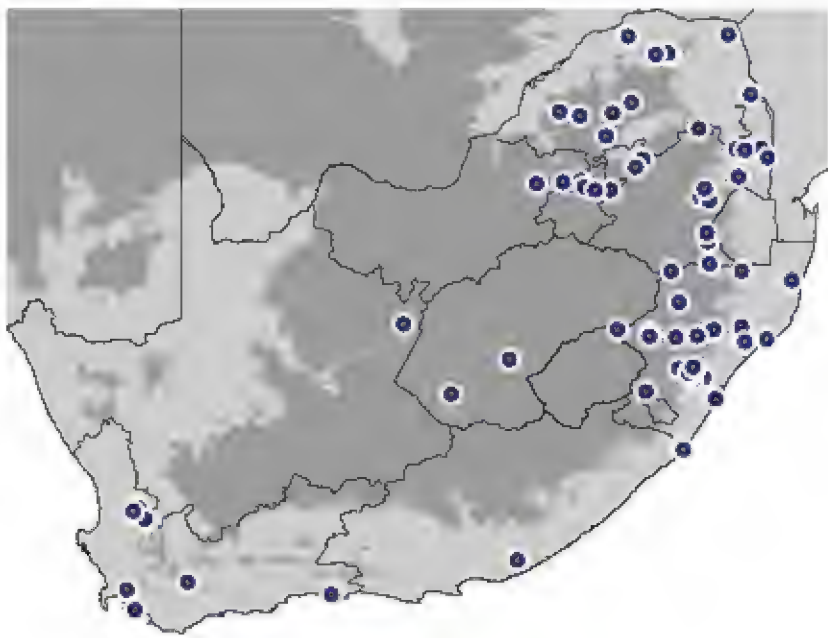
Yellow-veined Widow

Palpopleura jucunda Rambur, 1842

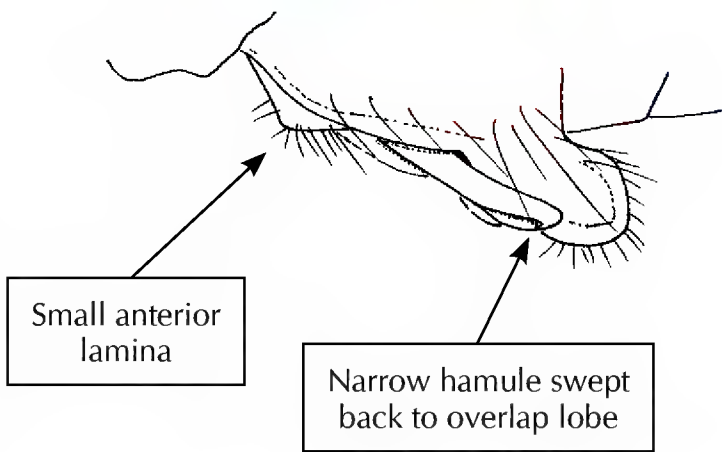
Appearance: The Yellow-veined Widow is very small, brown and powdery pale blue, with striking wings splashed in dark brown and yellow. Face yellowish. Labrum light yellow. Anteclypeus, postclypeus and front of frons greyish yellow. Frons brilliant shiny metallic blue on top. Head above yellow in front with a black median band, brown behind, brilliant shiny metallic blue on top. Eyes dark greyish blue above, light bluish grey below. Thorax dark brown above, yellowish green between wing bases, sides yellowish with black lines along sutures. Bases of forewing and hindwing have complex dark brown patches, highlighted with bright yellow veins. Forewing with deep brown dot around nodus. Wings with yellowish amber patches around dark areas and outer region of hindwing. Pterostigmas dark brown, 2.2–2.3 mm long in forewing, 2.8–2.9 mm long in hindwing. Segments 1, 2 and first half of segment 3 yellow and black above, rest of segment 3 and segments 4 to 8 pruinulent light greyish blue. Segments 9 and 10 black. Abdomen bright yellow with a black median line underneath.

Female: yellowish brown. Thorax reddish to dark brown above. Abdomen with elongated dark brown spots which form a line on sides. Wings similar, also blotched in brown. Bases of all four wings with divided dark brown splashes and irregular oval dark brown patches just beyond nodus, all patches surrounded by amber. Pterostigmas cream on inside, dark brown on the outside.

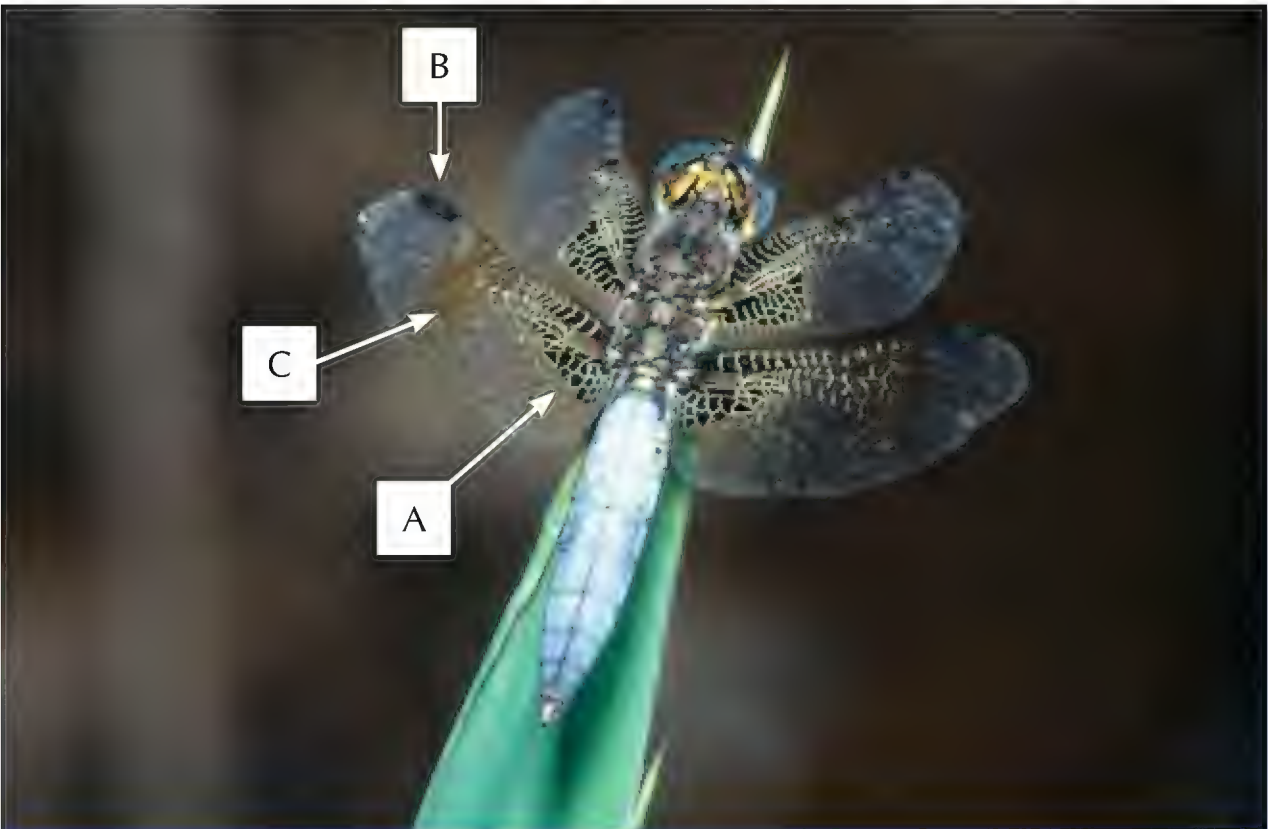
Field notes: The Yellow-veined Widow is widespread but localised throughout much of the



Threat	DBI
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country, although largely absent from the Karoo. Its range extends north to Sudan. Its habitat is marshy reaches along streams and shallow rivers, and sometimes soggy areas of pools and vleis. It has a butterfly-like flight. On hot days, it darts about low among the vegetation, especially grassy patches, and frequently perches high on tall grass stems.



- Very small
- Pale blue body
- Wings with dark brown and smoky patches
- A. Dark patches with bright yellow veins
- B. Pterostigmas longer in hindwing than forewing
- C. Smoky patches

Body length: 22–24 mm

Hindwing length: 16–17 mm



LIBELLULIDAE (Skimmers)



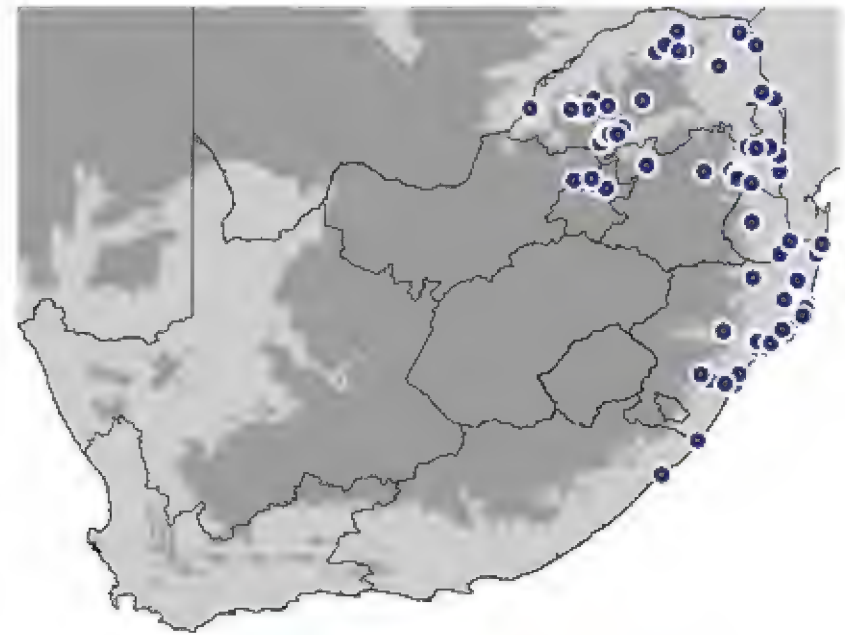
Lucia Widow

Palpopleura lucia (Drury, 1773)

Appearance: The Lucia Widow is very small to small with a powdery pale blue body and extensive black patches on all four wings. Face very dark brown. Labrum, anteclypeus, postclypeus and side of frons shiny blackish brown. Frons sloped and wrinkled, shiny deep metallic blue. Eyes dark brown. Thorax is mottled brown becoming pale pruinulent blue above, two pale indistinct yellowish long side stripes present that become obscured with age. Wings with extensive solid black markings from base to pterostigmas, hind margins of black markings undulating but can sometimes reach across to the hind margin. Pterostigmas cream on inside, dark brown on outside, becoming all blackish with age, 3.5–3.8 mm long. Abdomen all pale pruinulent bluish grey with clearly visible black appendages.

Female: yellowish dark brown and pale blue. Thorax with two yellowish stripes. Wings with basal dark brown patch with another larger one around nodus, almost reaching hind margin. These patches bordered and filled in with amber, extensively so in hindwing to reach hind margin. Abdomen pruinulent in the central region above, line of squarish yellow spots present on each side.

Field notes: The Lucia Widow is common in lowland KwaZulu-Natal and in the northern provinces, up to 200 m elevation in KwaZulu-Natal. Its range extends to West and East Africa. It occurs

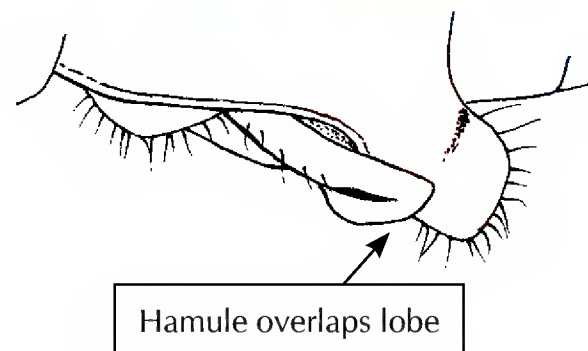


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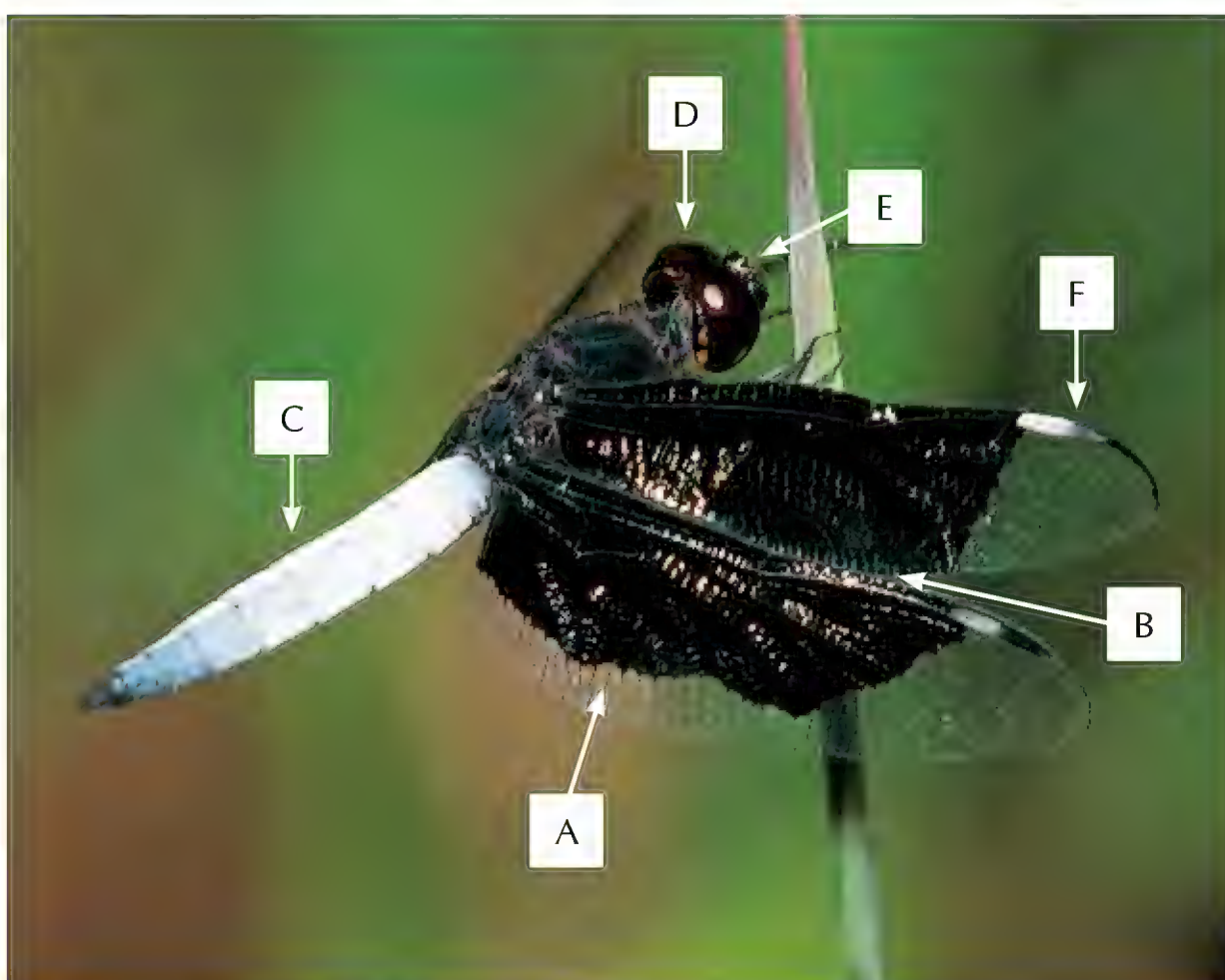
LC

DBI

2



at garden ponds, natural pools, pans, swamps, marshes and sluggish reaches of rivers where there is an abundance of tall grasses and reeds. It is conspicuous with its contrasting pale blue body and solid black wing markings as it perches on stems, usually over water or in marshy land. On the wing from November to May.



- Small
- All pale blue abdomen
- Black markings on wings reach hind margin or nearly so

- A. Edge of black patch a wavy line
- B. Black marking reaches hind margin
- C. Pale pruinulent abdomen
- D. Dark brown eyes
- E. Black front
- F. Pterostigmas cream on inside, dark brown on outside

Body length: 28.5–31.0 mm

Hindwing length: 23.0–24.5 mm

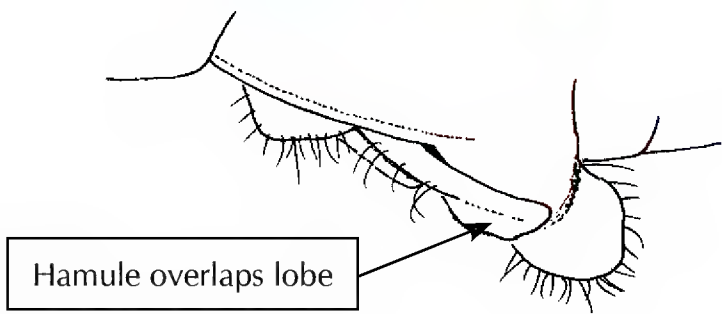
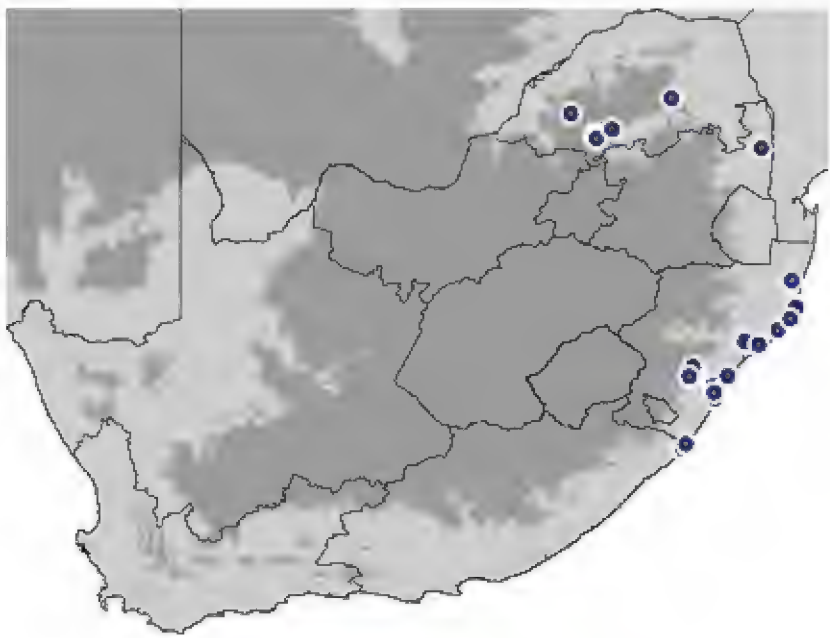
Portia Widow

Palpopleura portia (Drury, 1773)

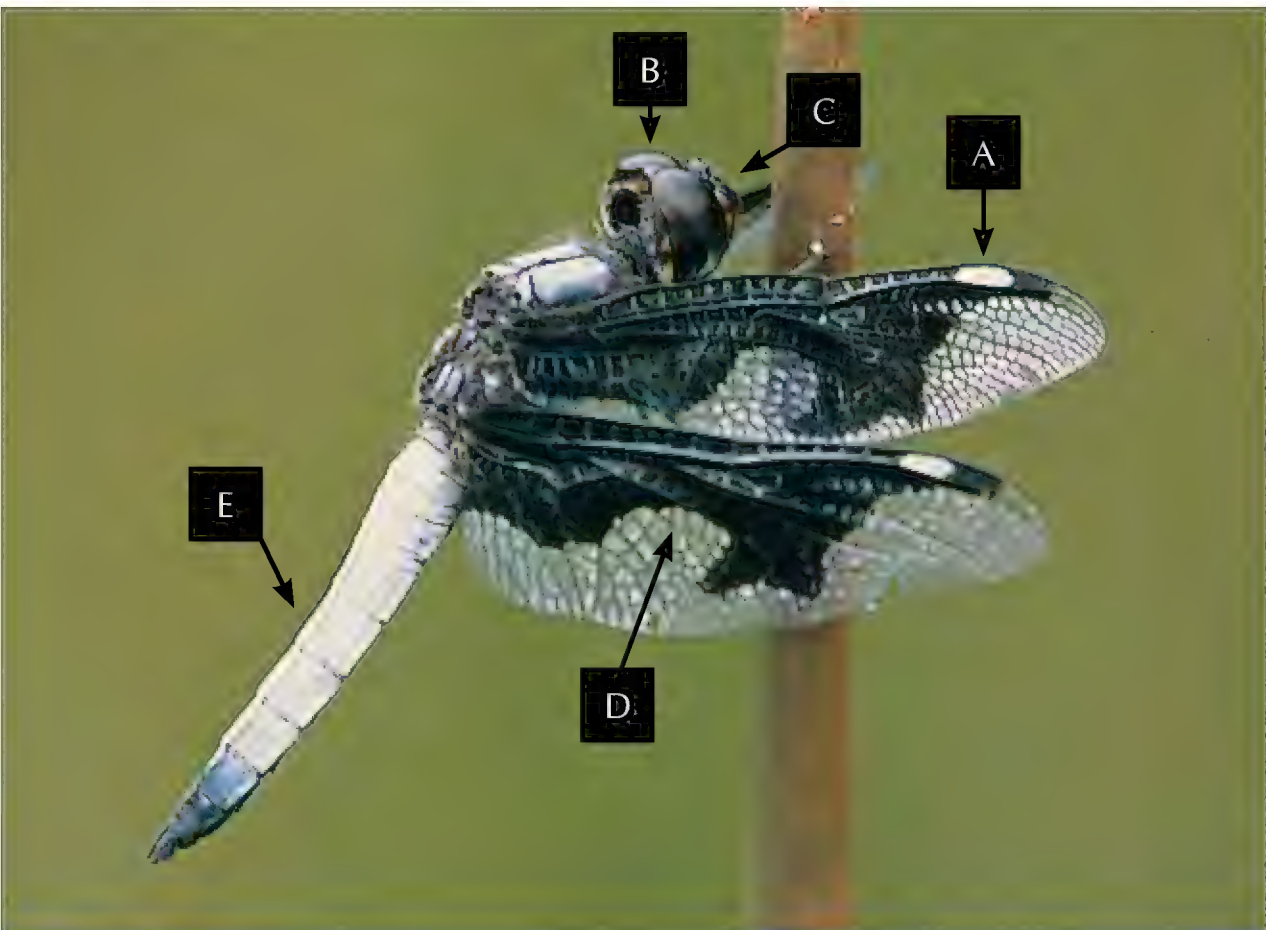
Appearance: The Portia Widow is very small to small, with a powdery blue body and extensive jet black but deeply indented patches on all wings. Face very dark brown. Labrum, anteclypeus, postclypeus and side of frons shiny blackish brown. Frons sloped, wrinkled and shiny deep metallic blue. Head prominent above with small peaks, dimpled, deep metallic blue. Eyes dark brown. Thorax mottled brown, pale pruinulent blue above, two straight light greenish yellow stripes present on sides. Wings with extensive black markings that extend beyond pterostigmas almost or completely reaching hind margin. Black wing markings with characteristic large indentation in centre. Pterostigmas cream on inside, blackish on outside, becoming all black with age, 3.5–3.7 mm long. Abdomen pale pruinulent bluish grey with distinct blackish appendages.

Female: light and dark yellowish brown. Thorax with two yellowish stripes. Wing pattern similar but less extensive, particularly on the front margins, brown rather than black, bordered with amber. Abdomen with irregular dark brown stripes over light yellowish brown, may become somewhat pruinulent with age.

Field notes: The Portia Widow is locally common in lowland KwaZulu-Natal and in the northern provinces, up to 800 m elevation in KwaZulu-Natal. Its range extends to West and East Africa, and to Madagascar and the Comoros. It occurs



in natural pools, pans, swamps, marshes, garden ponds, as well as sluggish reaches of rivers with an abundance of tall grasses and reeds. It is conspicuous with its blue body and distinctively notched black wing markings as it perches on stems, usually over water but also in marshy areas. It sometimes occurs at the same pool as the Lucia Widow at coastal localities. On the wing from November to May.



- Small
- All pale blue abdomen
- Black on wings deeply notched
- A. Pterostigmas cream on inside, dark brown on outside
- B. Dark brown eyes
- C. Pale front
- D. Black deeply notched
- E. Pale pruinulent abdomen

Body length: 25–29 mm

Hindwing length: 20–24 mm



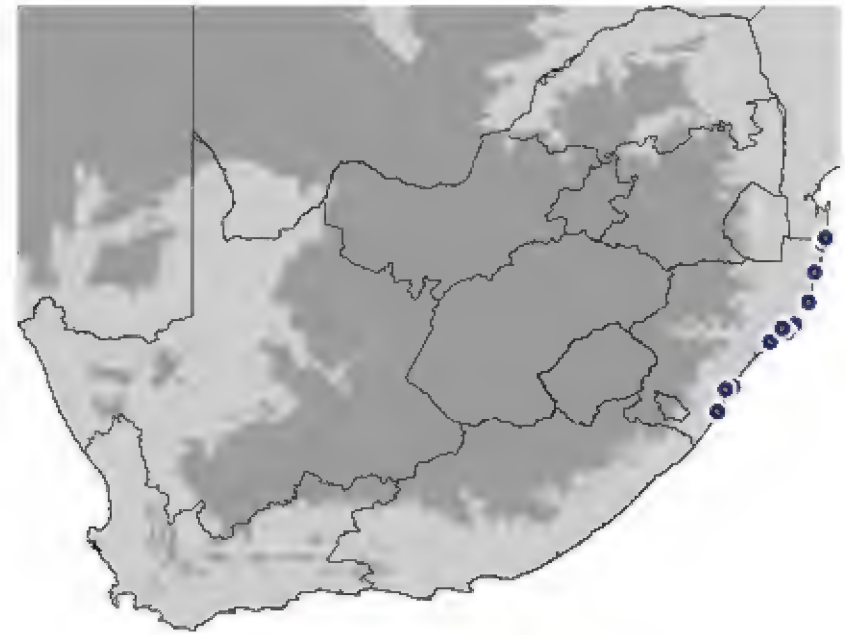


Inspector

Chalcostephia flavifrons Kirby, 1889

Appearance: The Inspector is small, slender, and all powdery blue, with a distinctly yellow face. Frons blackish along sides. The top of frons and top of head brilliant metallic green, may appear metallic blue from some angles. Eyes dark grey above, light grey below. Thorax pruinescent greyish blue. Wings clear to slightly smoky. Pterostigmas pale greyish brown between distinctly dark veins, 3.4–3.7 mm long. Abdomen pruinescent greyish blue. Female also with yellow face and metallic on top of head, pterostigmas pale, body yellowish and heavily marked in dark brown especially upper surfaces of thorax and abdomen.

Field notes: The Inspector is localised along coastal KwaZulu-Natal. It extends to central Africa, and is also found on Madagascar. It inhabits the fringes of warm pools of savanna and pools in association with humid coastal forest. It perches usually about 1.5–2.0 m from the ground, on the end of twigs extending from the tree canopy. It gets its name from its conspicuous perching position from where it watches all around by constantly moving its head at different angles. On the wing from December to May.

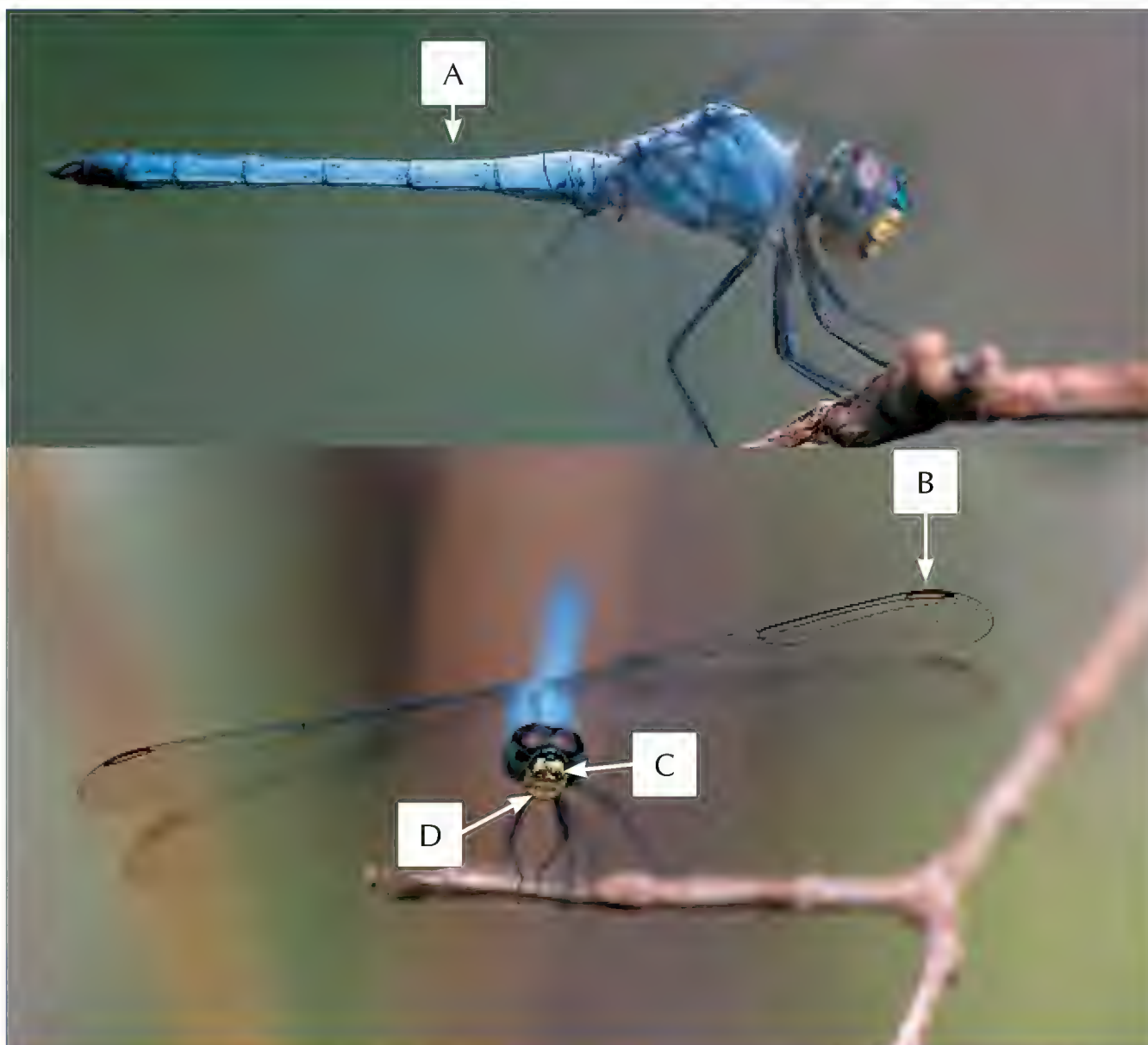
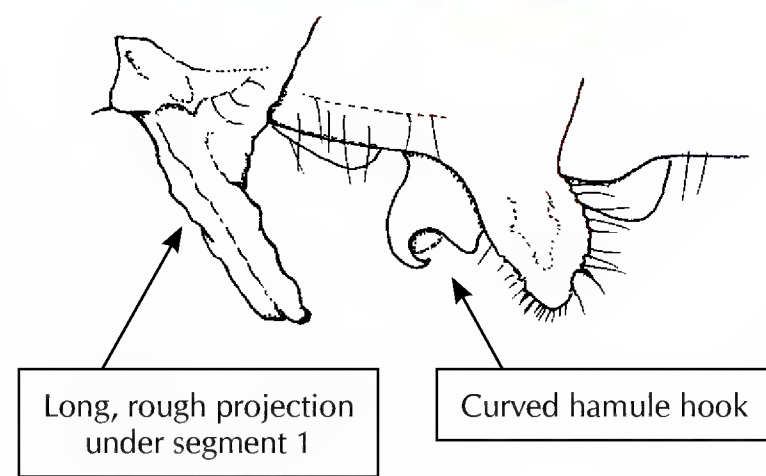


Threat

LC

DBI

4



- All powdery blue and slender
- Metallic green and yellow head

- A. All light blue body
- B. Pterostigmas long and light between dark veins
- C. Metallic green nose
- D. Bright yellow lower face

Body length: 31–34 mm

Hindwing length: 24–28 mm

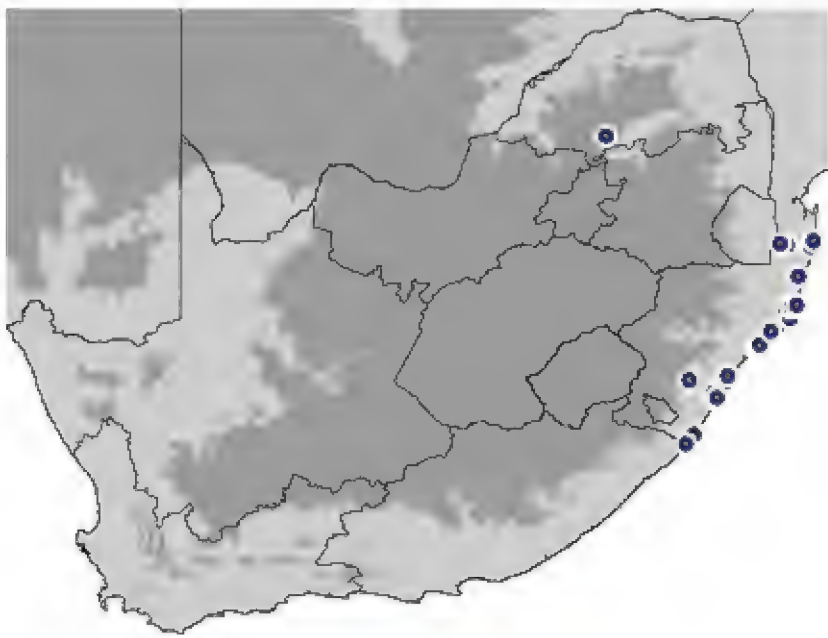
African Piedspot (Pied-spot)

Hemistigma albipunctum (Rambur, 1842)

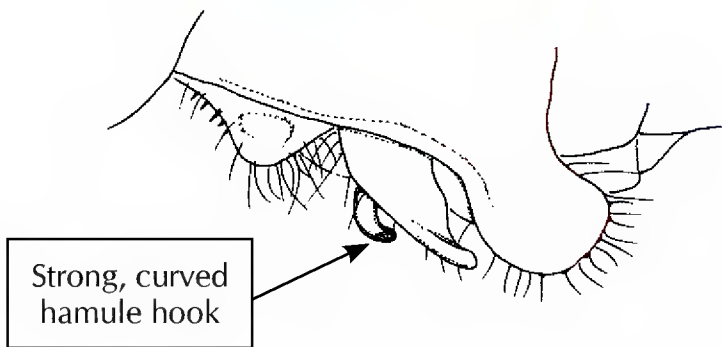
Appearance: The African Piedspot is small, slender and powdery pale blue, with distinctly black and white pterostigmas. Face and labrum buff. Anteclypeus and postclypeus greyish buff. Frons shiny black with slight metallic blue sheen, sharply contrasting buff dot present on either side. Head shiny black above with slight metallic blue sheen. Eyes mid grey above, light grey below. Thorax pruinescent greyish blue with whitish hairs. Wings usually with dark brown stripe at base of forewings that is smoky along leading edges, this stripe absent from some individuals. Pterostigmas conspicuously half whitish on inside, half blackish brown on outside, 3.7–3.8 mm long.

Female: yellow streak runs along neck and length of thorax between wing bases, this streak sharply outlined in dark brown on neck and first part of thorax. Eyes brightly reddish brown above, light grey below. Wing tips dark brown, yellow smoky wing patch present. Distinctly bi-coloured pterostigmas present. Abdomen yellow along top, dark brown on sides.

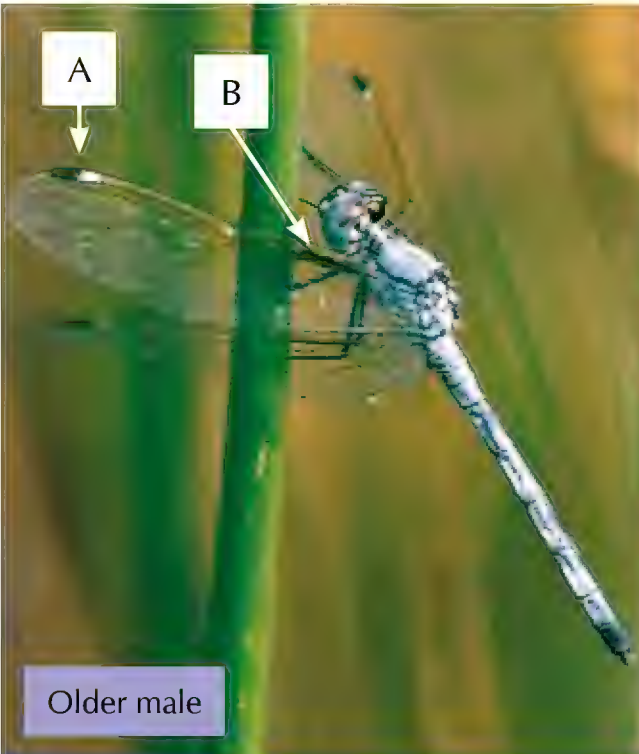
Field notes: The African Piedspot is fairly common along coastal northern KwaZulu-Natal and at some localities in the Limpopo Province. Its range extends to central Africa. It lives in marshes and



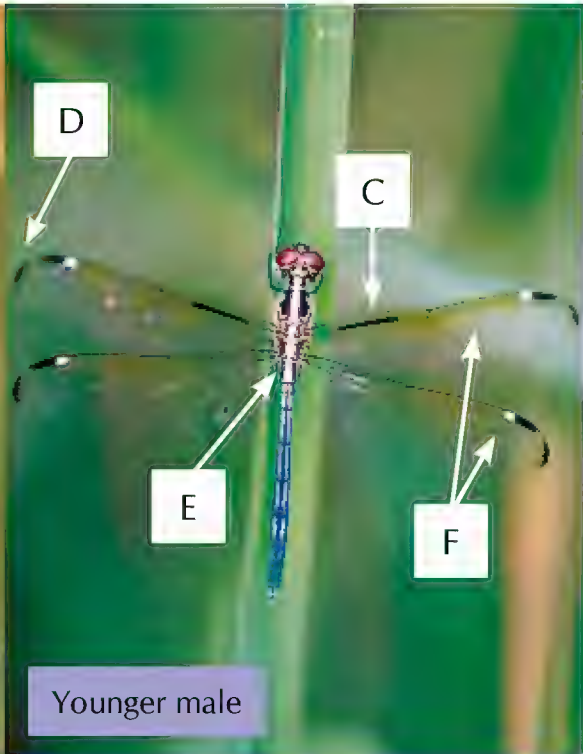
Threat	DBI
LC	3



swamps with densely packed reed beds, as well as wetlands with papyrus. It perches on reeds or grass stems, darting out and then returning to a different perch. On the wing from November to May.



Older male



Younger male

- All pale powdery blue
 - Black and white pterostigmas
 - Forewings usually with black streaks and smoky patches
- A. Pterostigmas white on inside, black on outside
B. Black streak on forewings
C. Black streak
D. Dark tip
E. Cream line
F. Smoky patches

Body length: 29.5–35.0 mm

Hindwing length: 22.5–25.0 mm





Stout Pintail

Acisoma inflatum Sélys, 1882

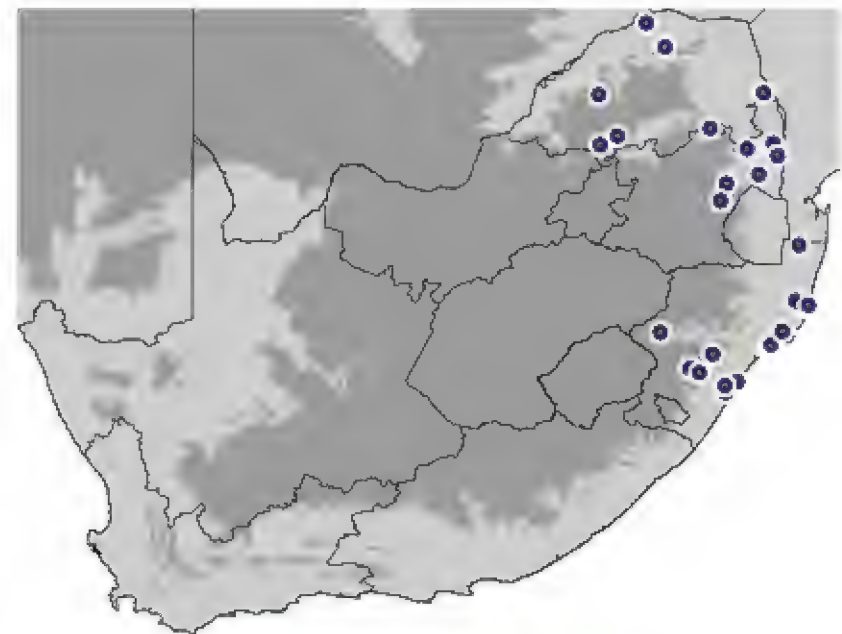
and

Slender Pintail

Acisoma variegatum Kirby, 1898

Note: these two species were formerly lumped together as *Acisoma panorpoides*. Recent discoveries indicate that there are in fact two species of *Acisoma* in South Africa: *A. inflatum* (Stout Pintail) and *A. variegatum* (Slender Pintail), both of which are now known to occur in South Africa, even in the same habitat and same pool at least in northern, coastal KwaZulu-Natal. As the distributions of both species are confused, the DBI for both remains at 2 for the time being.

Appearance: The Stout and Slender Pintails are very small to small, mosaic bluish grey, greenish yellow and black, with bulbous abdomens that taper sharply at mid length, becoming black and ending in cream appendages. Face various light colours and black stripes. Labrum cream with basal central black dot. Anteclypeus pencil grey. Postclypeus light blue. Frons with black band in lower part, some black above and at sides, light blue centrally. Head black above. Eyes bright turquoise. Thorax light bluish grey, covered with myriad of irregular black lines and dots above and at sides. Wings clear, with dark brown patch in hind area of hindwing. Pterostigmas relatively long (3 mm), whitish, slightly transparent. Segments 1 to 4 swollen, contrasting with segments 5 to 10 which are narrow.

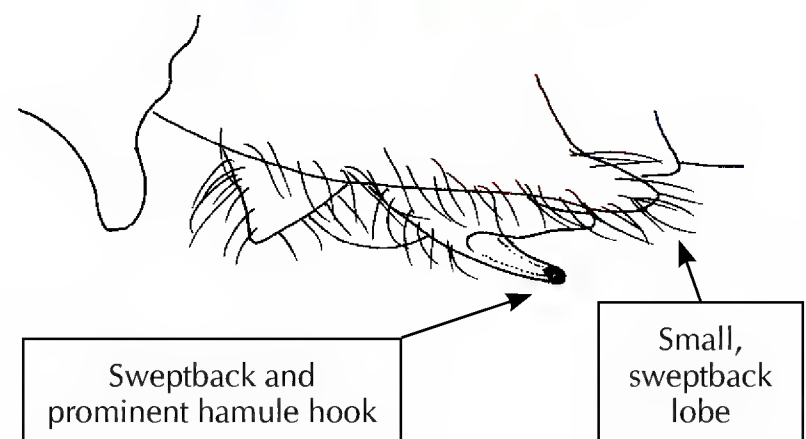


Threat

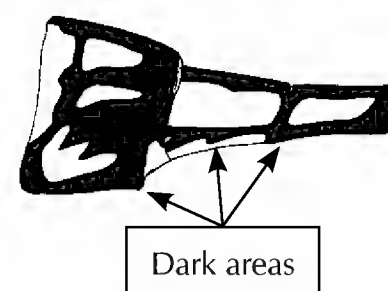
LC

DBI

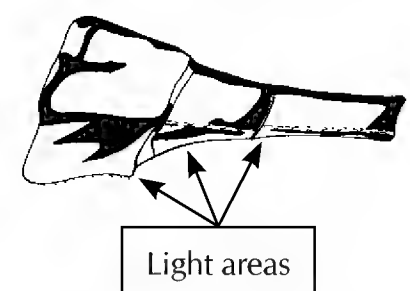
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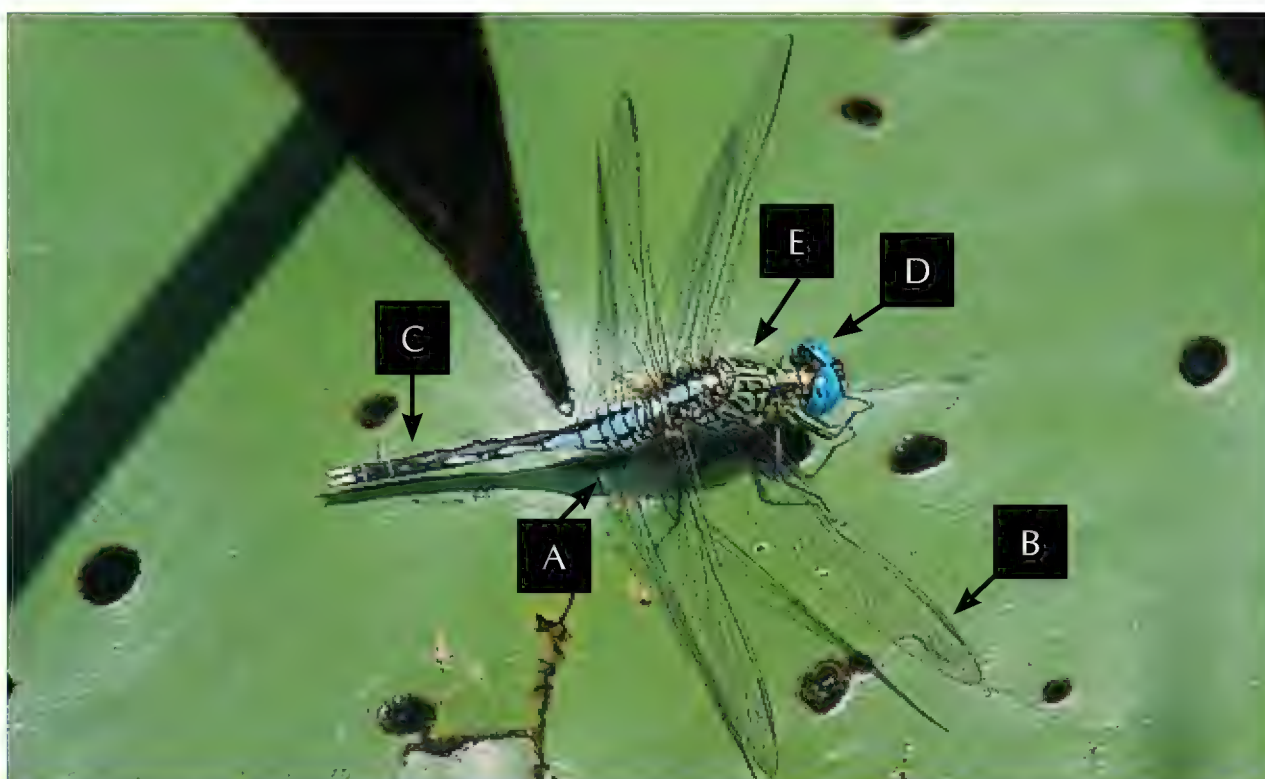
Acisoma inflatum



Acisoma variegatum



Base of abdomen in side view



- Very small
- A mosaic of bluish grey, greenish yellow and black
- Bulbous abdomen with slender tail

- A. Bulbous start to abdomen
- B. Pterostigmas long and whitish
- C. Slender tail
- D. Bright turquoise eyes
- E. Mosaic thorax pattern

Body length: 30.0–33.5 mm

Hindwing length: 21.5–23.0 mm

Segments 1 to 7 light bluish grey with black markings, including dorsal stripe. Segments 8 to 10 black. Appendages strikingly white above, black below. Female similar in shape, straw coloured to greenish yellow with dark brown and blackish markings, underside of segments 1 to 3 bluish, pterostigmas light grey.

In side view the Stout Pintail's segment 6 of the abdomen is less than $2.5\times$ as long as high, whereas in the Slender Pintail the same segment is $3\times$ as long as high. The Stout Pintail has more extensive black markings on the abdomen than the Slender Pintail, and in side view the lower

region of segment 4 is black in the Stout Pintail but whitish in the Slender Pintail.

Field notes: The Stout and Slender Pintails as a group occur across lowland KwaZulu-Natal and in the northern parts of the country. The Stout Pintail extends to East, West and North Africa, whereas the Slender Pintail has an easterly distribution to Ethiopia. They occur at pools, pans, marshes and still reaches of rivers with a high density of lilies, sedges and grasses. Their flight is almost wasp-like as it darts over the floating vegetation, frequently settling, usually at least a metre from the bank. On the wing from November to May.





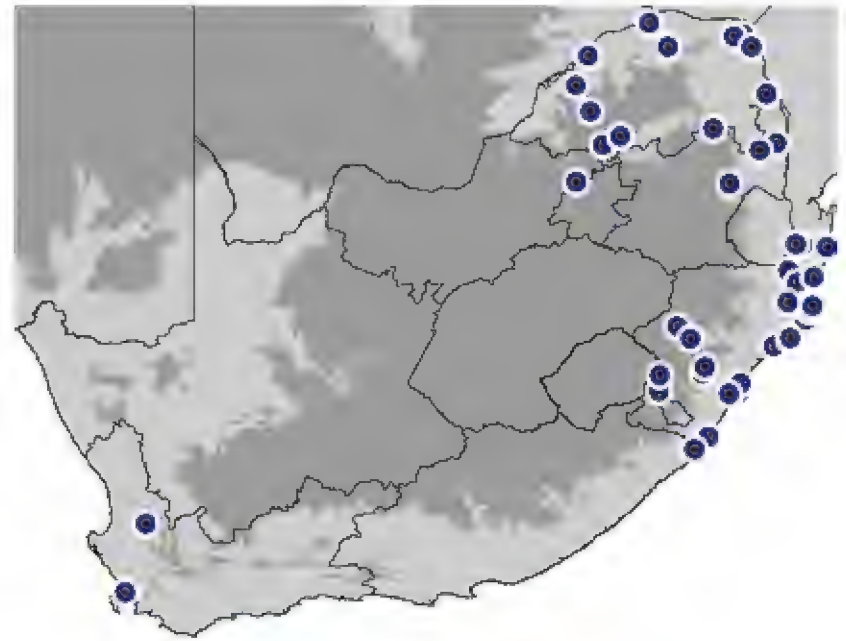
Black Percher

Diplacodes lefebvrii (Rambur, 1842)

Appearance: The Black Percher is very small to small and black. Face glossy black. Frons and top of head dimpled shiny black with slight purple metallic sheen. Eyes deep purplish black. Thorax totally black. Wings clear with small amber patch at base of hindwing. Pterostigmas light to mid greyish brown with dark brown front margin and thick black veins, 3.1–3.4 mm long. Abdomen all black, superior appendages contrastingly white but darkening with age.

Female: yellowish green with blackish irregular stripes on thorax. Hindwing with basal amber patch, larger than in the male. Pterostigmas light to mid greyish brown between thick dark veins. Abdomen with blackish stripe above and on sides. Yellowish side stripe present, peters out on segment 8.

Field notes: The Black Percher occurs in most of the eastern and northern parts of South Africa from coastal elevations to about 1 500 m. It also occurs locally along the West Coast and its range extends to Europe and some islands in the Indian Ocean. It inhabits pools, swamps, marshes, tarns and occasionally quiet reaches of rivers with an abundance of tall grasses and other swamp vegetation. It rarely flies more than a metre or two, and usually perches less than half a metre from the water surface and usually on a grass stem or

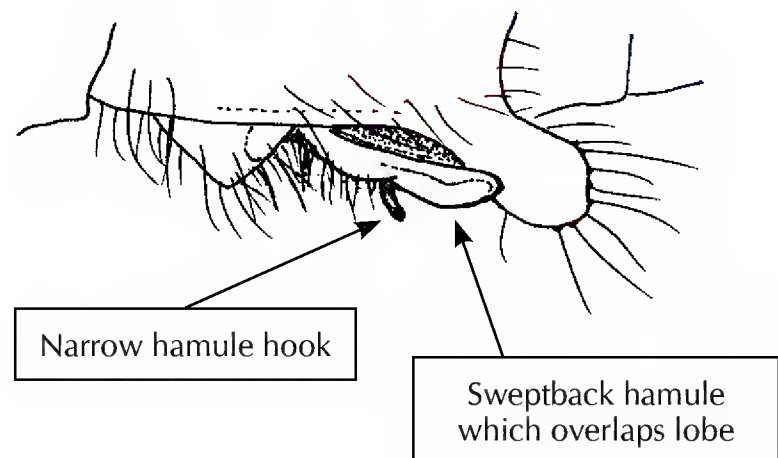


Threat

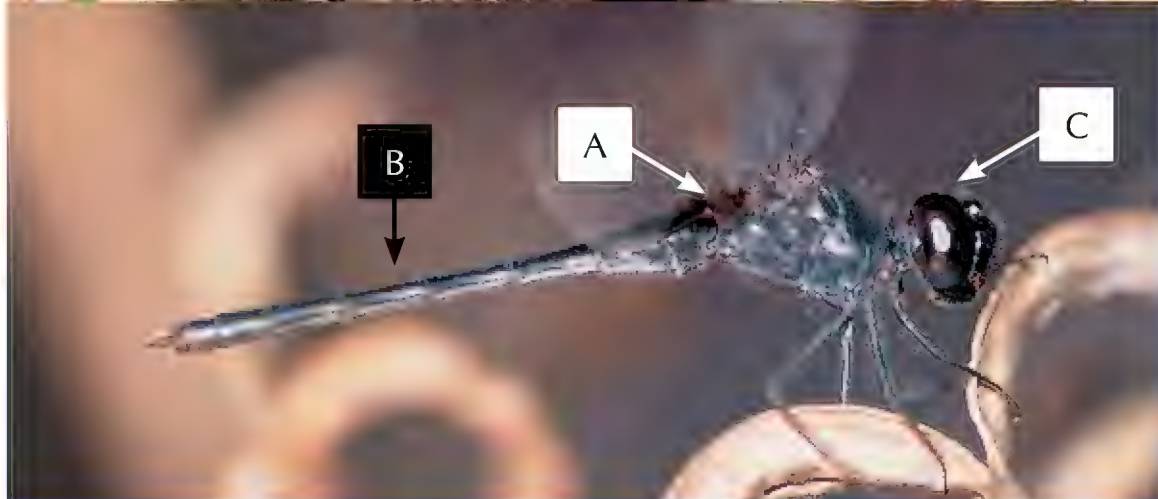
LC

DBI

3



away from water on the ground. On the wing from October to May, but in warm areas individuals may be seen during winter.



- Small and all black
- Small, dark amber patch at base of hindwings

A. Dark amber basal patch
B. All black body
C. Dark purplish black eyes

Body length: 27–33 mm

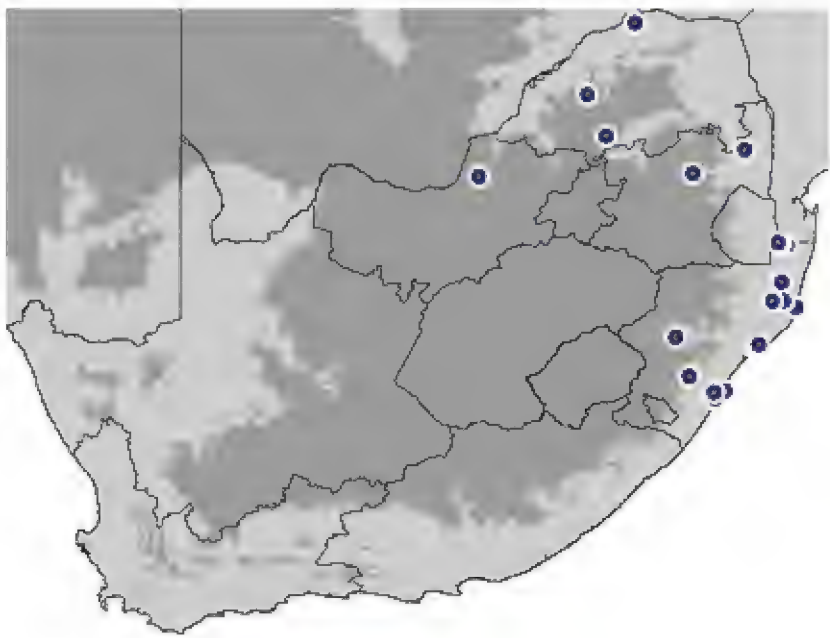
Hindwing length: 20.5–25.0 mm

Barbet Percher

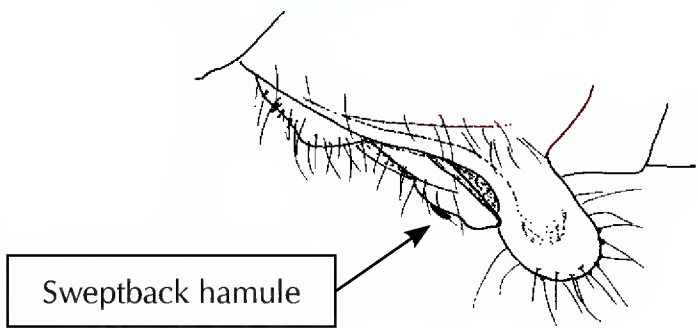
Diplacodes luminans (Karsch, 1893)

Appearance: The Barbet Percher is small to medium sized, with a bright red thorax, and yellow and black tail. Face and top of head orangish red. Eyes dark red above, grey below. Thorax bright red above becoming greyish at sides with indistinct pale yellow side stripe. Wings clear, diffuse orange splashes present at bases, largest in hindwing. Pterostigmas light yellowish with large dark brown centres, 3 mm long. Segments 1 to 3 mostly bright red with some fine black lines on top and at sides. Segment 4 begins red, becomes yellow at back. Segments 5 to 8 black with contrasting light yellow pairs of dashes. Segments 9 and 10 black, cerci yellow. Female dull greyish and greenish to yellow brown, markings on segments 5 to 10 similar to those in the male, wings similarly with orange splashes and dark-centred pterostigmas.

Field notes: The Barbet Percher is locally common throughout coastal northern KwaZulu-Natal and the northern provinces, up to about 400 m elevation, but occasionally wanders to 800 m. It extends to West and East Africa, and has also been recorded on Assumption Island, Indian Ocean. It occurs in shallow pans and marshes with lilies and an abundance of tall grasses,



Threat	DBI
LC	3



sedges and reeds. It perches conspicuously on the tips of sedges or reeds in open water. On the wing from November to April.



- Red thorax and base of abdomen
- Rest of abdomen yellow and black
- A. Red base of abdomen
- B. Yellow and black abdomen
- C. Red thorax
- D. Dark red eyes
- E. Diffuse orange patch
- F. Light yellow pterostigmas with dark brown centres

Body length: 36–39 mm

Hindwing length: 27–30 mm





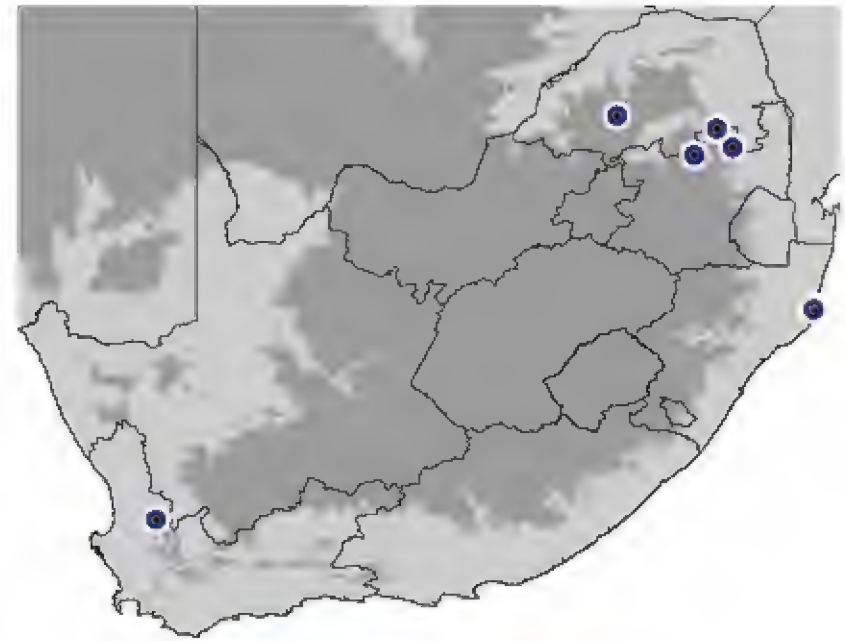
Dwarf Percher

Diplacodes pumila Dijkstra, 2006

Appearance: The Dwarf Percher is very small with clear wings, a reddish brown or dark brown top to the abdomen, and a strong black line running along the length of the abdomen. Face yellowish green. Frons dark yellowish green, black above against eyes. Head shiny black above. Eyes dark brown above, light brown below. Thorax reddish brown to dark brown above, becoming pruinose deep blue and dark with age, long white hairs present on top, sides of thorax yellowish green with irregular and sharp blackish diagonal lines. Wings clear with faint smoky patch at base of hindwings. Pterostigmas pale yellow to light brown between dark brown veins. Abdomen slender, with wide black stripe running its length when viewed from above, bordered on either side by yellow stripes that narrow toward tip. Segments 1 to 3 become lightly pruinose with age, abdomen can become very dark overall.

Female: face yellowish green with black band in front of eyes. Thorax reddish brown above, yellowish green at sides, with black lines along sutures, long white hairs on top also present. Pterostigmas pale yellow, darkening with age. Abdominal patterning similar.

Field notes: The Dwarf Percher is rare and highly localised, having only been recorded in northern and eastern parts of South Africa, and a single record from the Western Cape. Its range extends to East Africa. It occurs in and around shallow

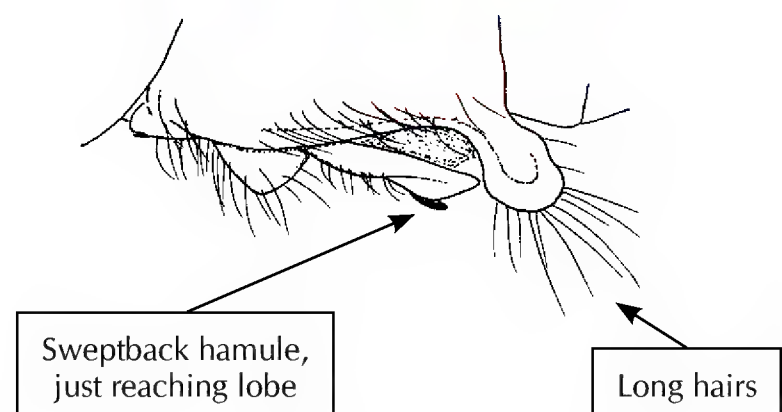


Threat

LC

DBI

7



pools and marshes with an abundance of sedges, reeds and shallow fringes with much tall grass. It remains low among the vegetation, usually perching on grass stems or twigs. On the wing from December to April.



- Very small
- Blackish
- Yellow and dark abdomen

- A. Brown thorax top
- B. Yellow and black abdomen
- C. Blackish body
- D. Grey eyes with brown cap

Body length: 21–22 mm

Hindwing length: 14–15 mm

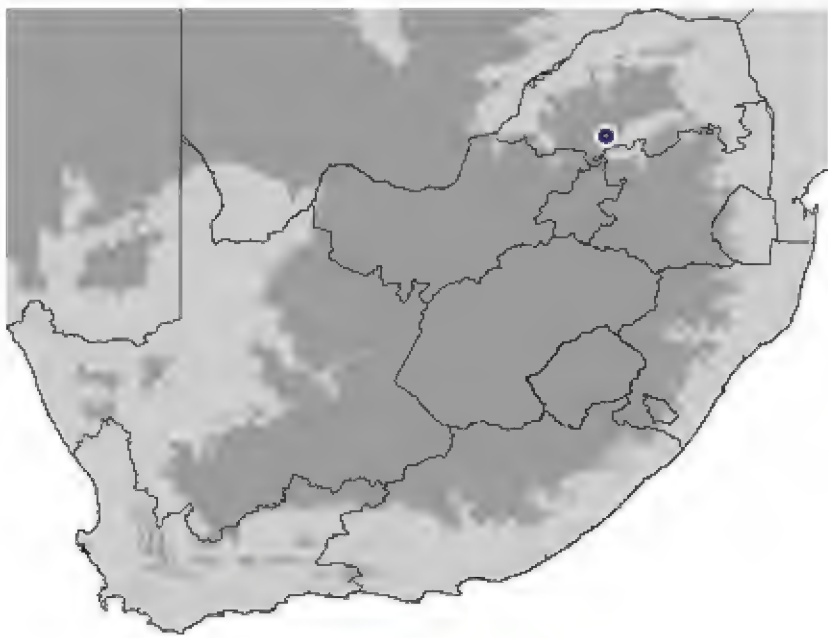
Rock Scarlet

(Divisa Scarlet)

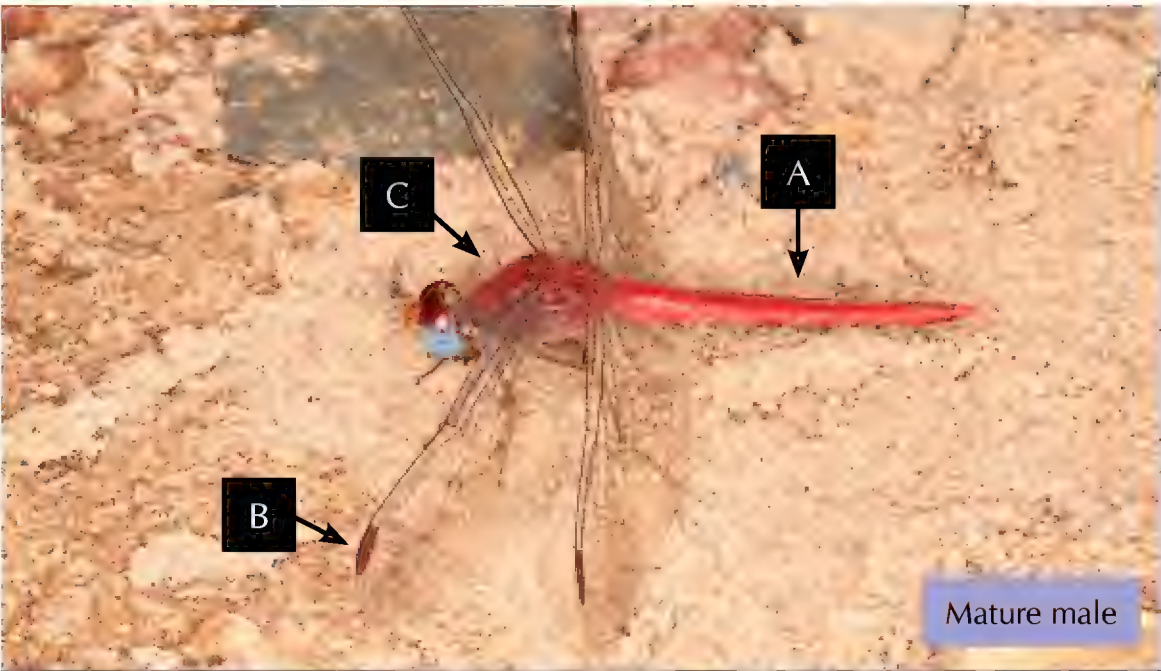
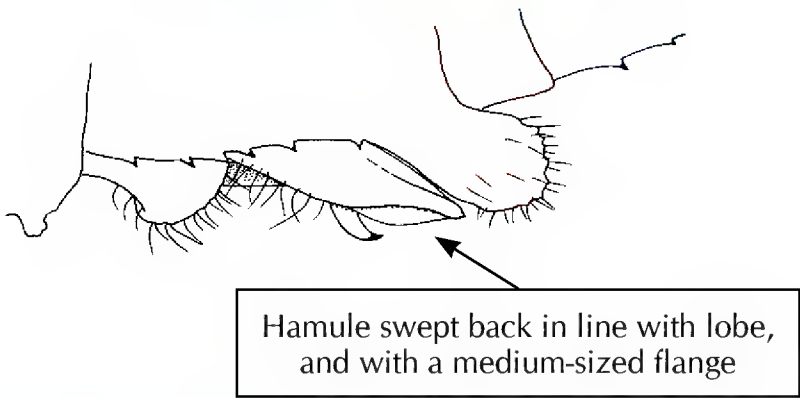
Crocothemis divisa Karsch, 1898

Appearance: The Rock Scarlet is medium sized, with a pinkish red body and greyish sides to the thorax. Face pale yellow. Frons above and top of head yellowish brown. Eyes deep red above, light greyish blue below. Thorax dark dull red above, greyish reddish brown at sides. Black marks present between wing bases. Wings clear, without basal amber patches. Pterostigmas reddish brown, 4.0–4.4 mm long. Abdomen long, fuselage-shaped, fairly slender, pinkish red. Female brownish, thorax mid brown and pale brown at sides, also without basal wing patches, pterostigmas reddish brown and long.

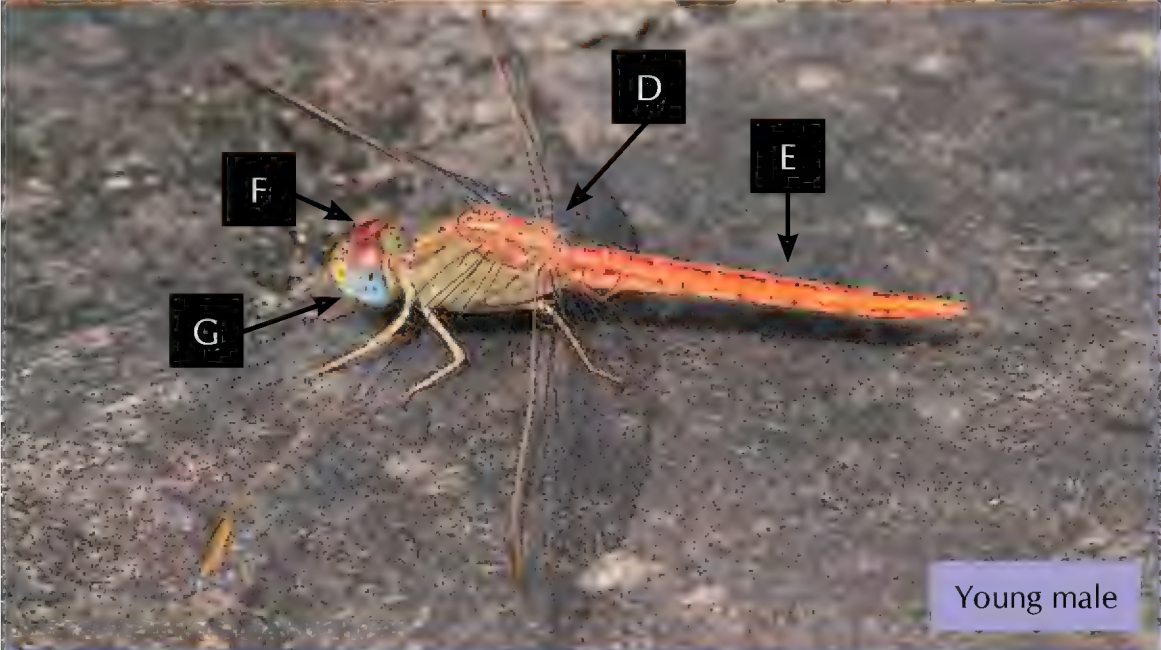
Field notes: The Rock Scarlet has only been recorded from the Limpopo Province. Its range extends to West Africa and Sudan, as well as Madagascar. Its habitat is pools and rocky streams in dry bushy savanna. It is alert as it perches mostly on rocks. In South Africa it has only been recorded as on the wing in November, but further north its flight period is November to March with occasional overwintering individuals.



Threat	DBI
LC	2



Mature male



Young male

- Slender, all red, with darker abdomen sides
 - Eyes with dark red cap and greyish blue below
- A. Slender abdomen
B. Long, reddish brown pterostigmas
C. Thorax red on top and greyish red at sides
D. No basal wing patches
E. Slender abdomen
F. Eyes with a dark red cap
G. Eyes light greyish blue below

Body length: 40–41 mm

Hindwing length: 30–31 mm





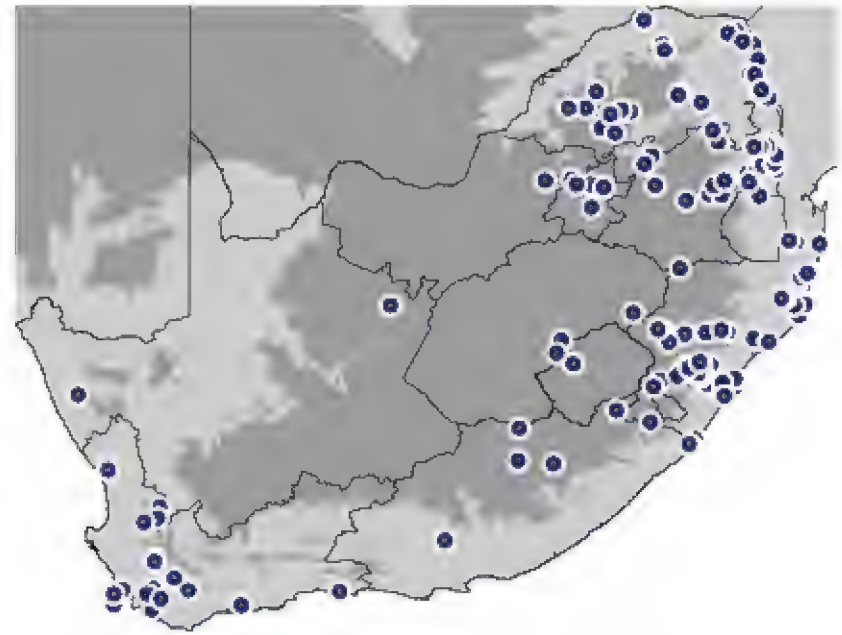
Broad Scarlet

Crocothemis erythraea (Brullé, 1832)

Appearance: The Broad Scarlet is bright red and medium sized with a distinctly wide body. Face reddish. Labrum orange. Anteclypeus dull orange. Postclypeus and frons dull red, brownish next to eyes. Top of head reddish in front, dull orange above. Eyes dull crimson with distinctive light blue edging on hind margin. Thorax deep crimson becoming brownish below. Wings clear with reddish main veins, hindwings with brownish basal patches, forewings with minute amber patches at bases. Pterostigmas light yellowish brown between blackish veins becoming darker with age, 4.1–4.3 mm long. Abdomen wide, 3.5–3.8 mm at widest point, bright red, very pointed, long dark smudgy line running its length, but becoming narrow and more defined on segments 8 and 9.

Female: light orange brown. Eyes brownish with light grey hind margin. Thorax orange brown, with indistinct narrow darker brown shoulder stripe next to light brown shoulder stripe. Distinct buff stripe present running between wing bases. Hindwings with diffuse basal amber patches. Pterostigmas light yellowish brown, 4 mm long. Abdomen light orange brown, with diffuse dark stripe running its length.

Field notes: The Broad Scarlet is one of South Africa's commonest dragonflies and occurs throughout the country up to about 1 600 m elevation, although rather scarce in the Karoo. Its range extends to northern Europe and West

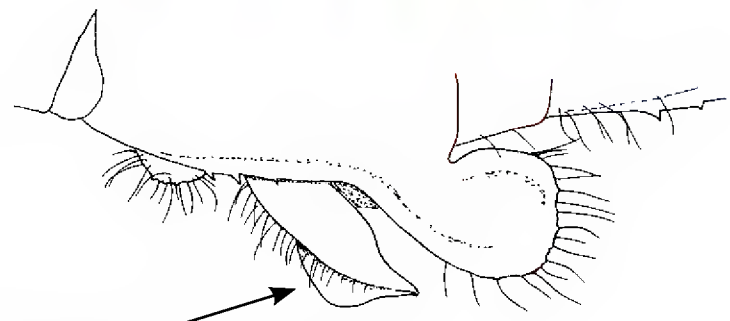


Threat

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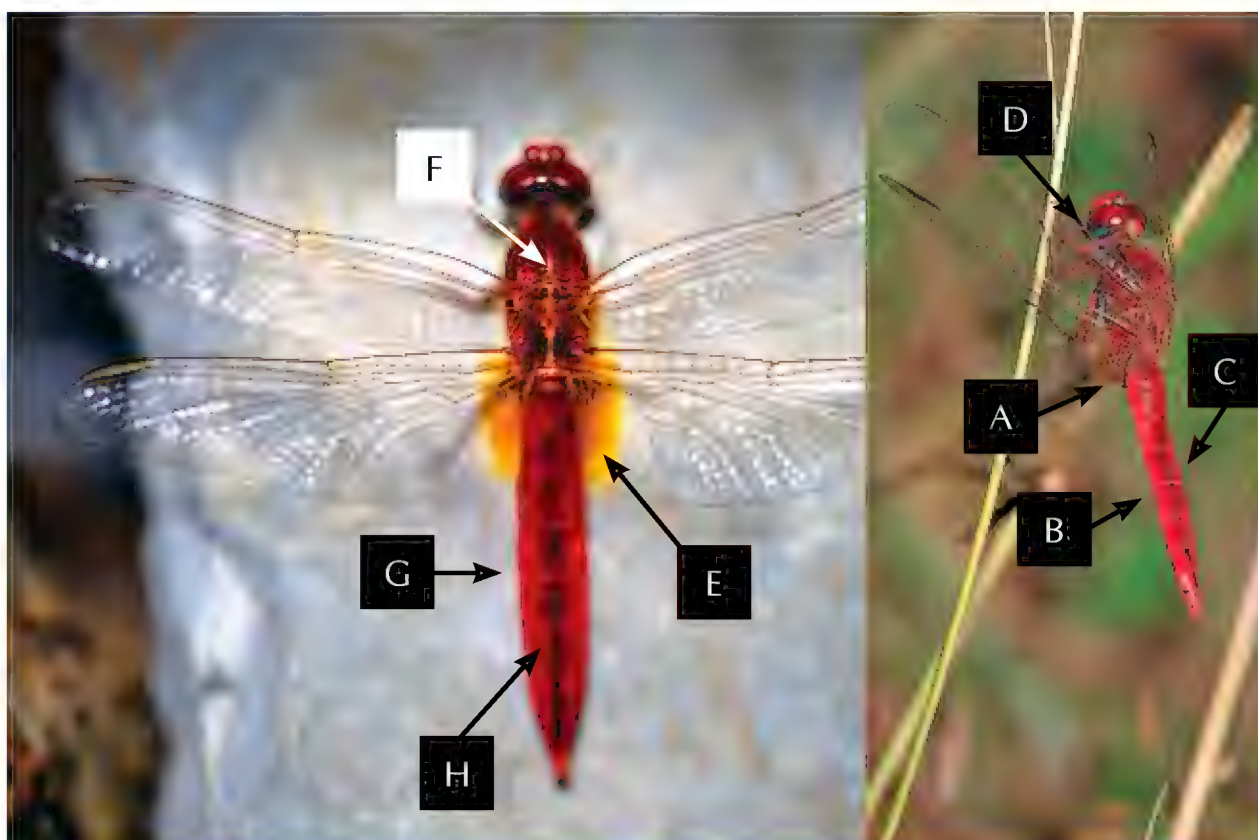
DBI

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Prominent hamule with large flange, like a drill bit

Asia. It occurs at pools and shallow still reaches of streams and rivers, usually with an abundance of floating and emergent vegetation. It perches conspicuously, usually close to the water surface on lilies, reeds and twigs and occasionally on boulders. It has a strong darting flight when disturbed. On the wing from October to May.



- A very common species
- All bright red
- Distinct dark red patch on hindwing
- Wide abdomen

- A. Distinct dark basal patch
- B. Wide abdomen
- C. Faint dark stripe
- D. Blue hind edge of eyes
- E. Distinct orange basal patch
- F. Pale stripe
- G. Wide abdomen
- H. Dark stripe

Body length: 39–40 mm

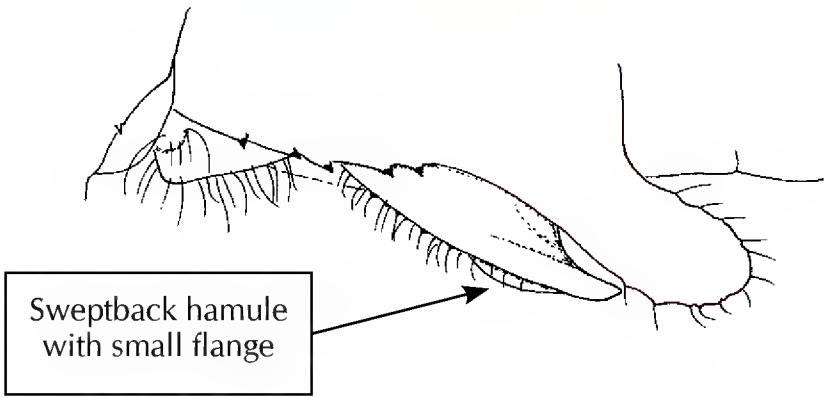
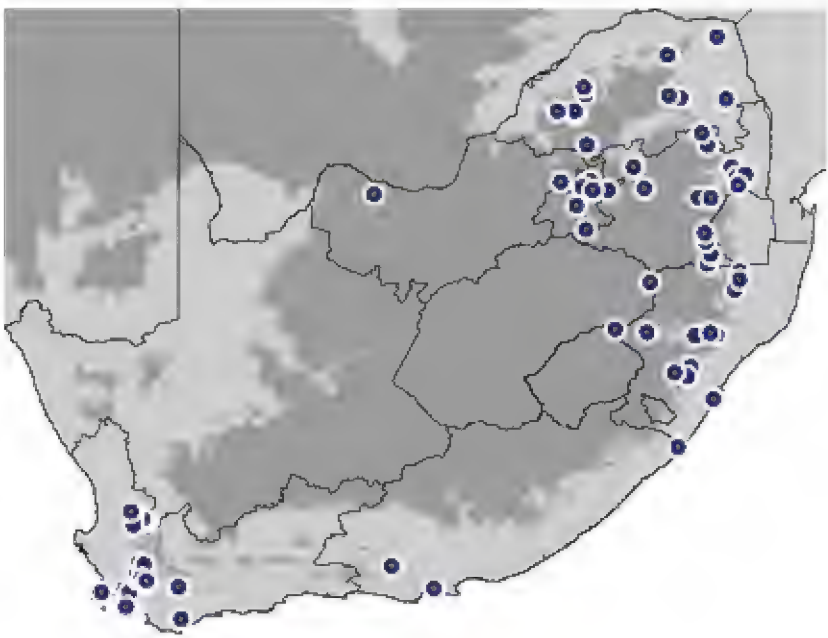
Hindwing length: 29–30 mm

Little Scarlet

Crocothemis sanguinolenta (Burmeister, 1839)

Appearance: The Little Scarlet is small to medium sized and bright red. Face reddish. Labrum and anteclypeus dull orange red. Postclypeus red. Frons red in front, dull red above. Head dull red above. Eyes dark crimson with dull blue line along hind margin. Thorax deep crimson to brownish red with weak shoulder stripe contrastingly dark and light. Wings clear with red main veins, hindwings with small amber basal patches, forewings with only hint of basal patches. Pterostigmas yellowish to bright reddish brown, 3.1–3.3 mm long. Abdomen stout but not wide, all bright red with indistinct dark line running all the way along top midline. Female plain orange brown becoming dull reddish with age, slightly darker on top of thorax with very faint shoulder stripe, main wing veins brown, hindwings with similar basal amber patches, pterostigmas light yellowish brown becoming reddish brown with age and 3 mm long.

Field notes: The Little Scarlet occurs throughout much of South Africa up to elevations of about 800 m and in the north sometimes up to 1 600 m. It is, however, largely absent from the Eastern Cape, the Karoo and the Northern Cape. It extends to the Middle East and also occurs in Madagascar. It occurs at rocky streams, pools in open fynbos or open savanna. It generally perch-



es on stones or bare soil in or away from streams, rarely perches on vegetation. While perching it is alert and readily takes flight. On the wing from November to May.



- All red
- Diffuse, amber basal patch
- Fairly slender abdomen
- A. Fairly slender abdomen with very faint dark marks
- B. Small diffuse amber patch
- C. Dark red eyes with a fine blue line along hind margin
- D. Shortish, reddish brown pterostigmas

Body length: 35–37 mm

Hindwing length: 27–28 mm



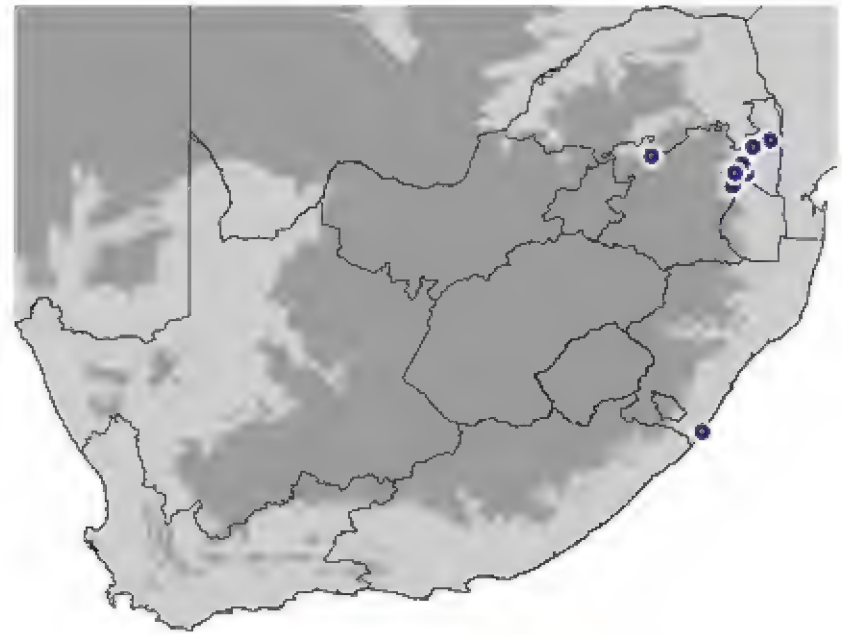


Horned Rockdweller

Bradinopyga cornuta Ris, 1911

Appearance: The Horned Rockdweller is medium sized, mottled brown and grey, with a horned head, long wings and short abdomen. Face greyish. Labrum light yellow with dark brown lip. Anteclypeus dark blotchy grey. Postclypeus light blotchy grey. Frons very rounded with two short, sharp horns, horns grey and dusted with dark brown. Top of head high with two short horns, horns dark brown with light yellowish grey bases. Eyes dark reddish brown above, speckled grey below. Thorax mottled grey, brown and greyish yellow. Wings very long, clear with brown veins, extreme tips smoky dark brown, small splash of smokiness present at base of wings. Pterostigmas speckled dark brown, yellowish brown on hind and side margins, 3.2–3.4 mm long. Abdomen short relative to wings, of a similar width all along its length, mottled grey, brown and greyish yellow. Segment 7 largely greyish yellow from above, forming a patch. Appendages noticeably pale grey. Female similar, spines on the head smaller, wing tips more extensively dark, hardly any basal wing marks present, abdomen stouter.

Field notes: The Horned Rockdweller is highly localised, with occasional records from KwaZulu-Natal and the Limpopo Province, but is most common in the southern Kruger National Park. Its range extends to West and East Africa. It has a specialised habitat: rocky outcrops and domes, usually granite, with deep rain pools in which it breeds. These dome pools are usually close to rocky, fast-flowing lowveld rivers. Its behaviour

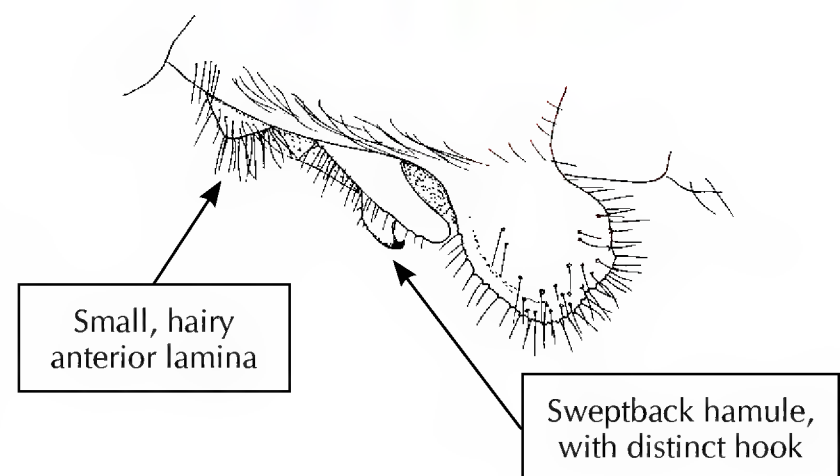


Threat

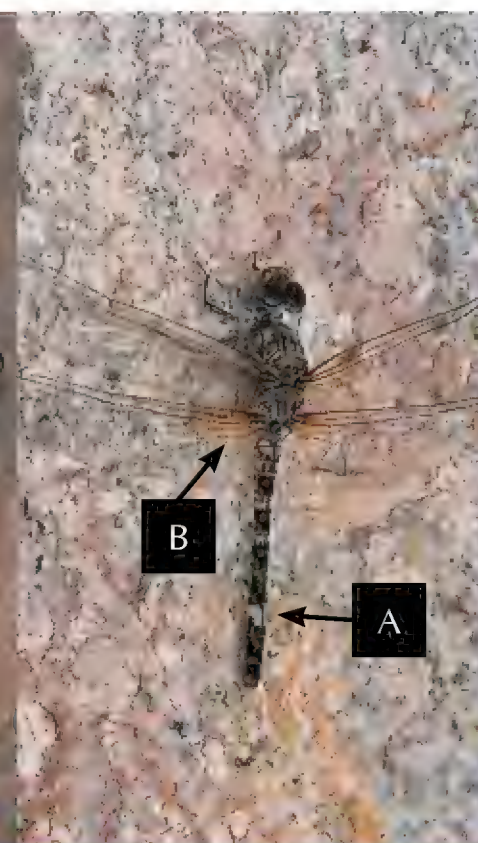
LC

DBI

5



is striking, as it settles on bare rocky outcrops and domes where it is well camouflaged. It is extremely alert and flies off instantly and at great speed when disturbed, usually returning to the same spot. Females and males are usually together. On the wing from September to May.



- Perches on granite rocks
- Long wings
- All mottled grey and brown

- A. Grey ring
- B. Splash of smokiness
- C. Pale grey appendages
- D. Long wings
- E. All mottled grey and brown
- F. Smoky wing tips

Body length: 42–43 mm

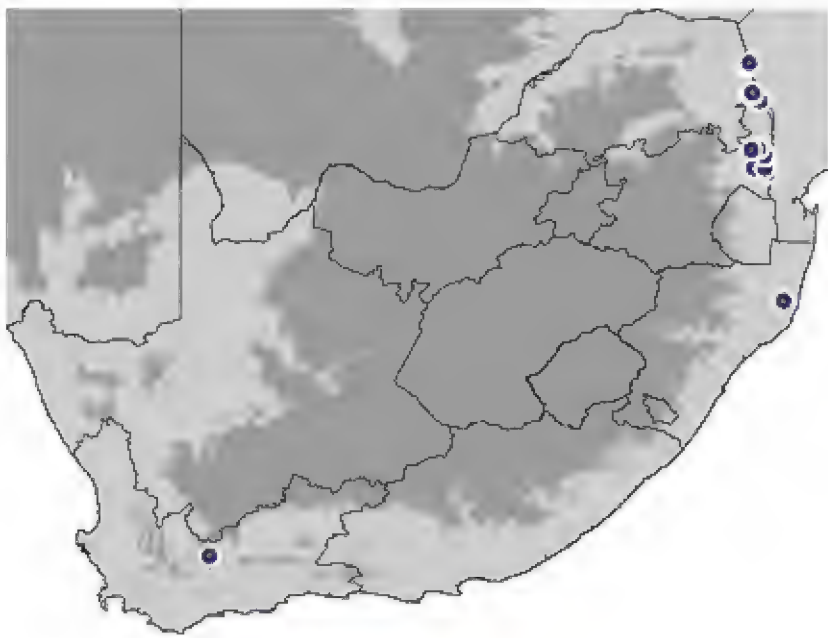
Hindwing length: 33–35 mm

Red Groundling

Brachythemis lacustris (Kirby, 1889)

Appearance: The Red Groundling is stocky and bright red with large orange splashes on the wings. Face all brownish red. Frons and vertex dimpled. Eyes dark red above, pinkish below. Thorax bright red. Wings with large bright orange splashes. Pterostigmas relatively short, yellowish brown on inside, dark reddish brown on outside, 2.1–2.2 mm long. Segments 1 to 4 bright red with no dark or black markings. Female all yellowish and light brown with few distinctive markings, stouter body, wings clear, no orange markings.

Field notes: The Red Groundling is common throughout KwaZulu-Natal and the Mpumalanga lowveld. There is one old record from the Western Cape, but this requires confirmation. Its habitat is the edges of small, tree-fringed, meandering rivers in hot areas. It is gregarious, several individuals of both sexes are often seen perching along a grass stem at the water’s edge. On the wing from November to April. Range extends to North and West Africa.

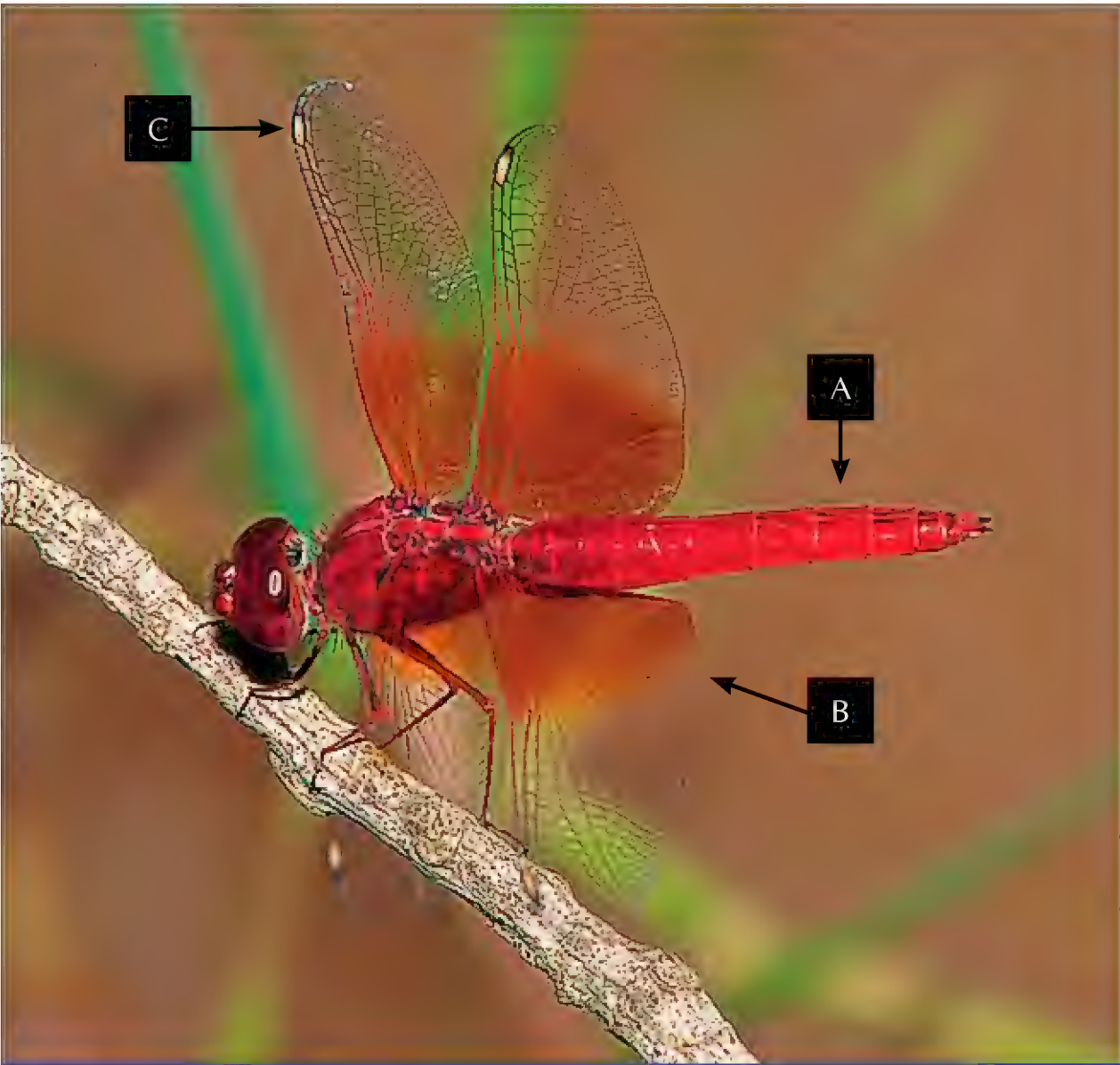
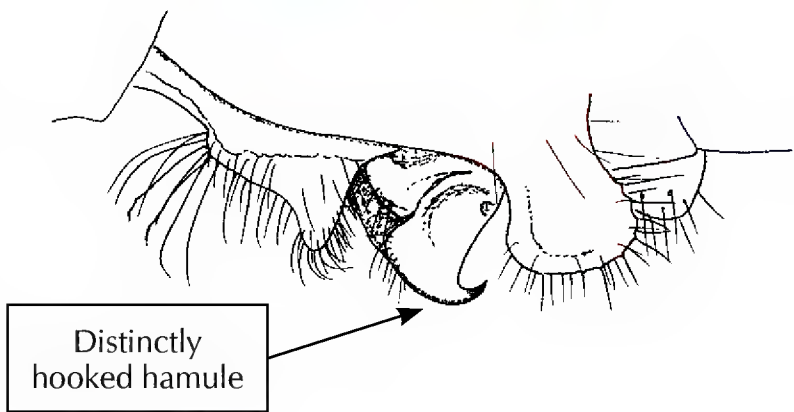


Threat

LC

DBI

3



- All red, stocky body
- All wings with large, red basal splashes
- Pterostigmas of two colours
- Often gregarious

- A. All red body
- B. Large, red basal wing splashes
- C. Pterostigmas yellowish brown on inside, reddish brown on outside

Body length: 31.5–32.5 mm

Hindwing length: 22.0–22.5 mm





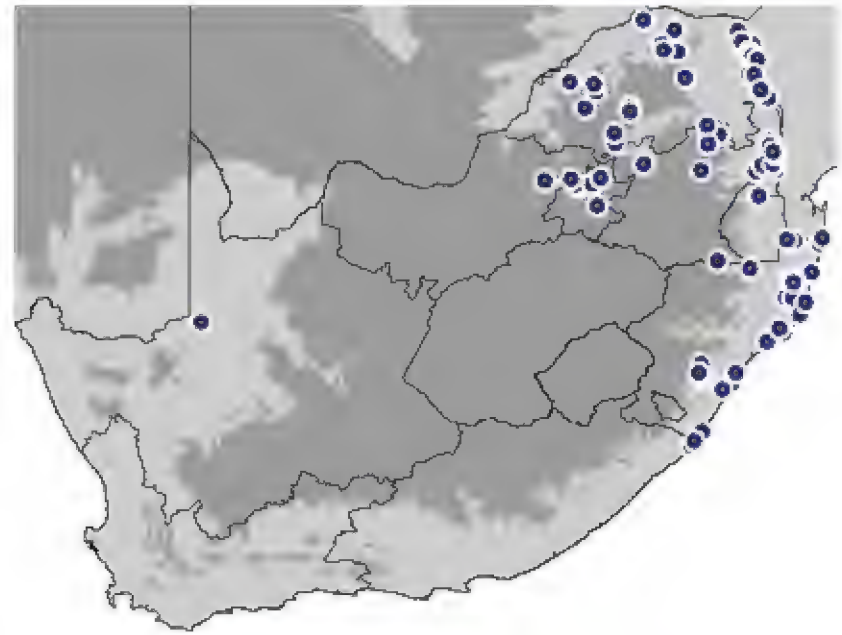
Banded Groundling

Brachythemis leucosticta (Burmeister, 1839)

Appearance: The Banded Groundling is small, black bodied with striking black bands across each of the wings and pale yellow pterostigmas. Face brownish. Labrum, anteclypeus and postclypeus mostly dark brown with some paler areas. Front of frons and top of head shiny black and dimpled, side of frons light grey with central black spot. Eyes mostly brownish black with some grey below. Thorax all charcoal. Wings each with wide black band between nodus and pterostigma, runs from front margin to hind margin, appears brownish when viewed from certain angles. Pterostigmas pale yellow, brown towards outer edge, becoming deeper brown with age. Abdomen charcoal.

Female: yellowish with brown eyes. Thorax with grizzled brown marks. Pterostigmas light yellow on inside, dark brown on outside. Abdomen with thin dark stripe running along top, and undulating dark stripe running along either side against yellow background. Segments 8 to 10 largely dark brown with yellow appendages. Female turns dark greyish brown with brown pterostigmas with age.

Field notes: The Banded Groundling is common throughout lowland KwaZulu-Natal and the northern provinces up to about 700 m elevation. It also occurs in the Northern Cape, near the Orange River and its range extends to West and East Africa. Its habitat is dry, grazed savanna with pools, dams and sluggish reaches of rivers.

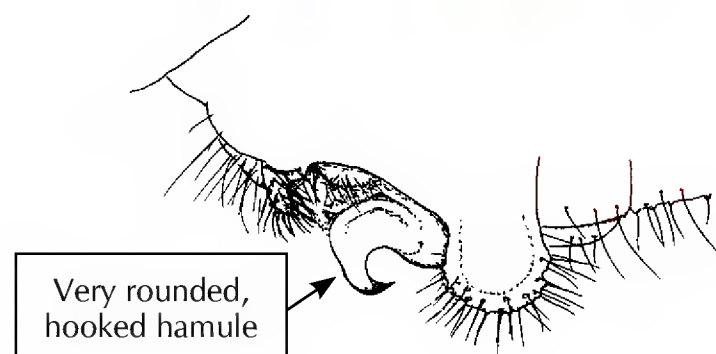


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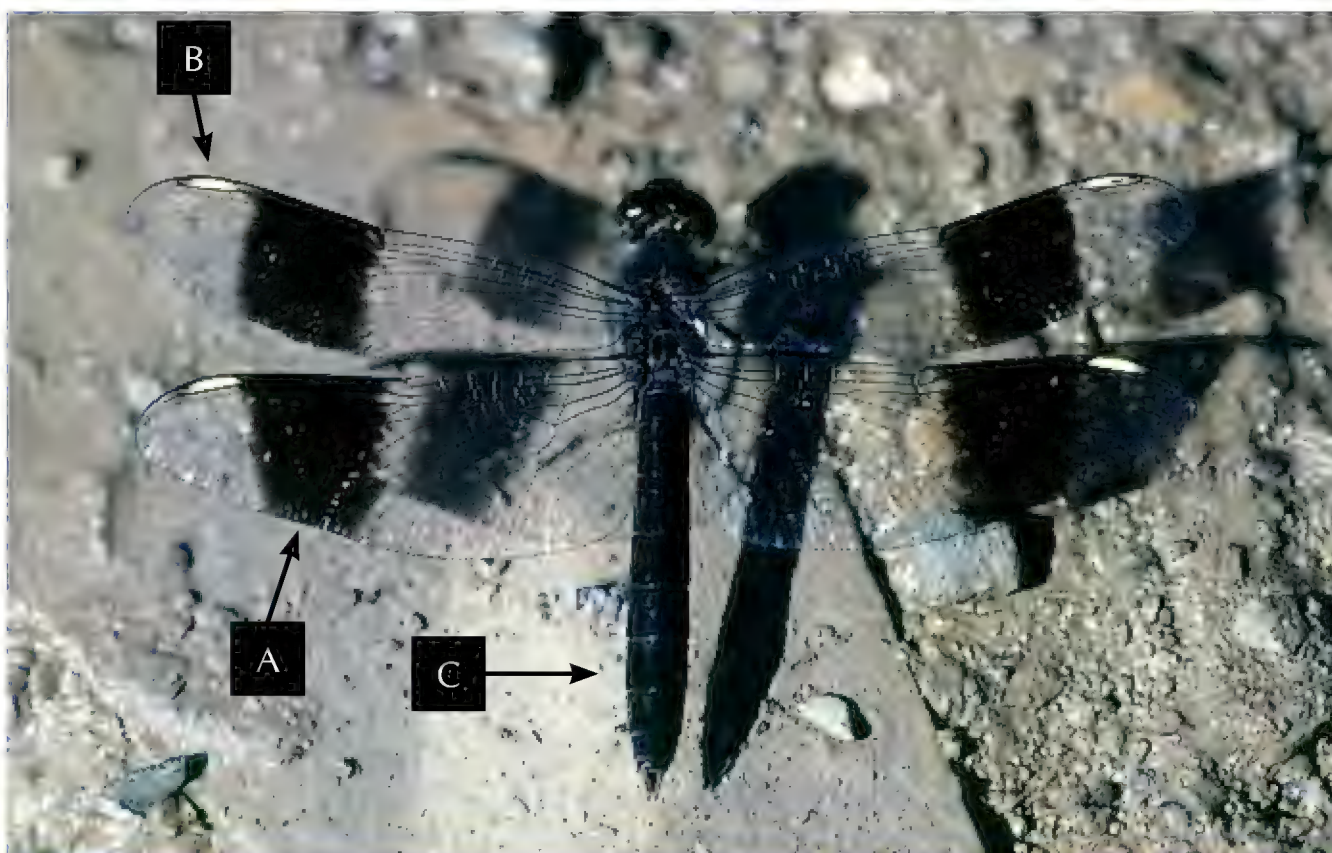
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ers. It is often seen away from water along dirt tracks between trees and on the fringes of receding pools with muddy beaches. It flies low to the ground, often following the observer as it would normally follow walking game so as to catch small insects put to flight by their movement. It usually perches on the ground but sometimes on dry vegetation. The female is often with the male but mating pairs are rarely seen. Sometimes several individuals occur together.



- Ground perching
- Equally sized black bands on all wings
- Overall black body
- Pterostigmas mostly yellow

- A. Black wing bands
B. Pterostigmas mostly yellow with some dark brown on outside
C. Black body

Body length: 29–31 mm

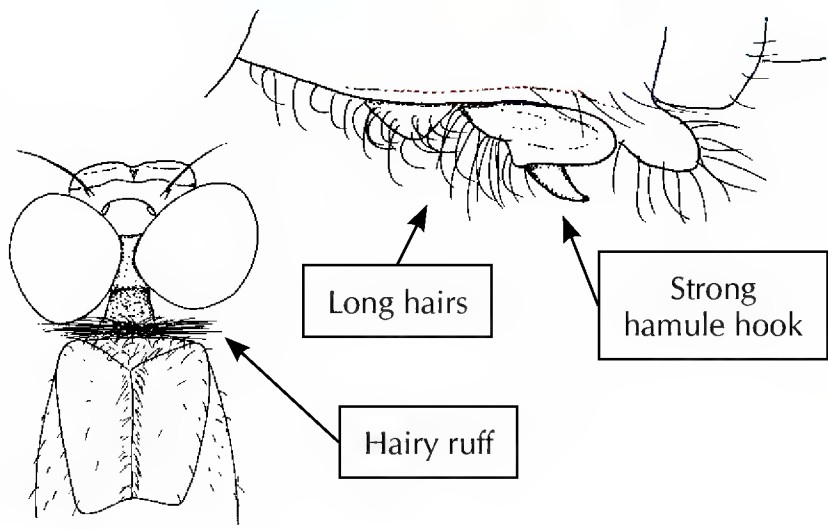
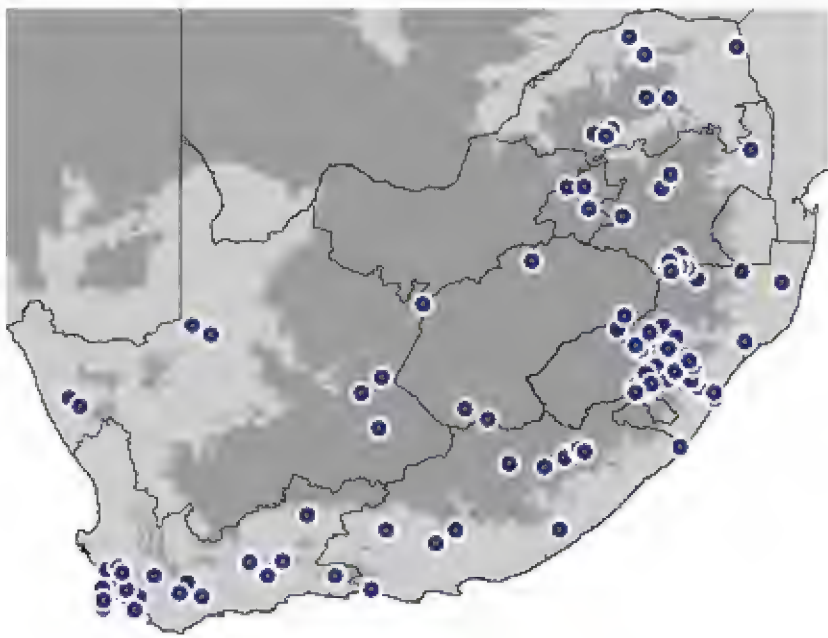
Hindwing length: 23.5–25.0 mm

Nomad

Sympetrum fonscolombii (Sélys, 1840)

Appearance: The Nomad is medium sized, reddish orange, with a brownish head and thorax. Face reddish brown. Labrum, frons and the front of top of head reddish brown. Sides of post-clypeus, frons, and back of head yellowish or greyish brown. Eyes dark reddish brown above, greyish blue below. Neck with long whitish hairs giving it the appearance of having a hairy ruff. Thorax reddish brown becoming more grey at sides with two indistinct but wide diagonal grey to buff stripes, sometimes only one of these stripes visible. Wings clear with small orange splashes at bases, especially in hindwings, veins reddish brown particularly close to thorax. Pterostigmas light yellowish to reddish brown between dark veins, 3.1–3.2 mm long. Membranule white. Abdomen usually orange red with two black dashes both in centre and at sides of segments 8 and 9. In some cases abdomen is pale orange brown rather than orange red. Female yellowish brown becoming greyish brown with age, indistinct but wide pale greyish diagonal line running across side of thorax, fine black line along side of abdomen separates yellow brown above from the pale straw below.

Field notes: The Nomad is widespread throughout South Africa, even up to 2 700 m elevation. Its range extends to Europe, Madagascar and Asia and it is a wandering and migratory species. Its breeding habitat is the margins of pools and dams with an abundance of tall grasses and reeds; also seen in grassland, sometimes far from water. Its migratory behaviour is particularly



strong in early summer. At pools it perches conspicuously on reed stems along the fringes over the water. On the wing from September to May, but is most abundant in October and November with a few individuals, usually old ones, to be seen in mid-winter.

- Medium-sized
- Reddish orange with brownish head and thorax
- Two greyish to buff, diagonal side stripes on thorax
- A. Two indistinct, pale, wide side stripes
- B. Reddish brown thorax
- C. Ruff
- D. Reddish orange abdomen
- E. Black dashes on upper and lower side of tail tip

Body length: 38–41 mm

Hindwing length: 27–30 mm



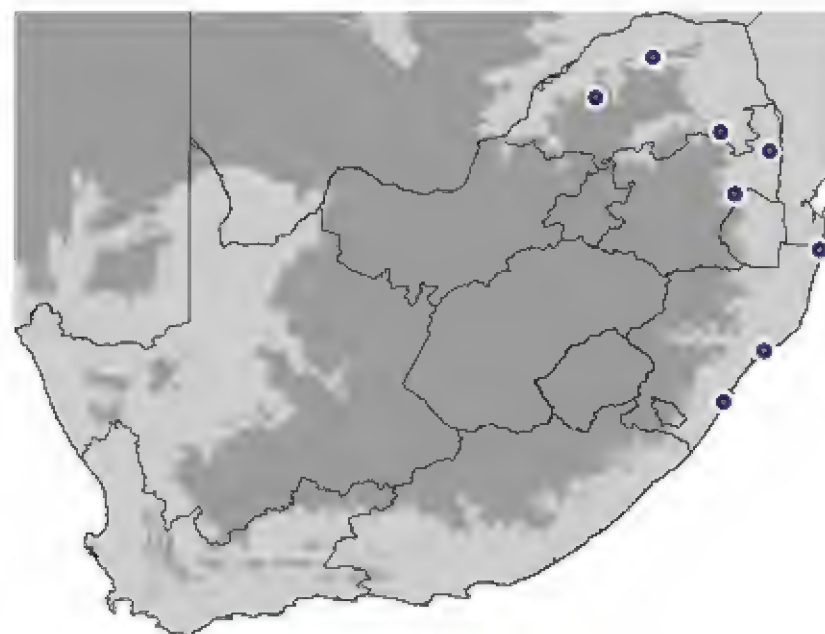


Halfshade Dropwing (Monkshood Dropwing)

Trithemis aconita Lieftinck, 1969

Appearance: The Halfshade Dropwing is small, slender and dark blue, with yellow dashes along the abdomen. Face contrastingly dull yellow and black. Labium light yellow with central dark brown stripe. Labrum black. Anteclypeus dull yellow with dark brown stripe running across it. Postclypeus and front of frons dull yellow. Top of frons and top of head dimpled, shiny, metallic purplish black. Short stripe runs down side of frons against eyes. Eyes dark bluish black. Thorax pruinose dark blue with brown banding and mottling showing through. Wings slightly smoky with a small split dark brown splash at base of hindwing. Pterostigmas orange brown between dark brown veins, 3 mm long. Abdomen slender, brownish black. Segments 1 to 3 with indistinct yellow dashes. Segments 4 to 8 with pairs of narrow yellow dashes on each segment. Segments 9 and 10 black. Female similar, stouter, less pruinescence on thorax so brown mottling and streaking clearly visible.

Field notes: The Halfshade Dropwing is highly localised in coastal northern KwaZulu-Natal and in the savanna regions of the northern provinces. Its range extends to West and East Africa. It inhabits rocky, shallow savanna rivers with bushes and trees overhanging the water. It is alert as it perches on twigs under the tree canopy over the water. On the wing from December to March.

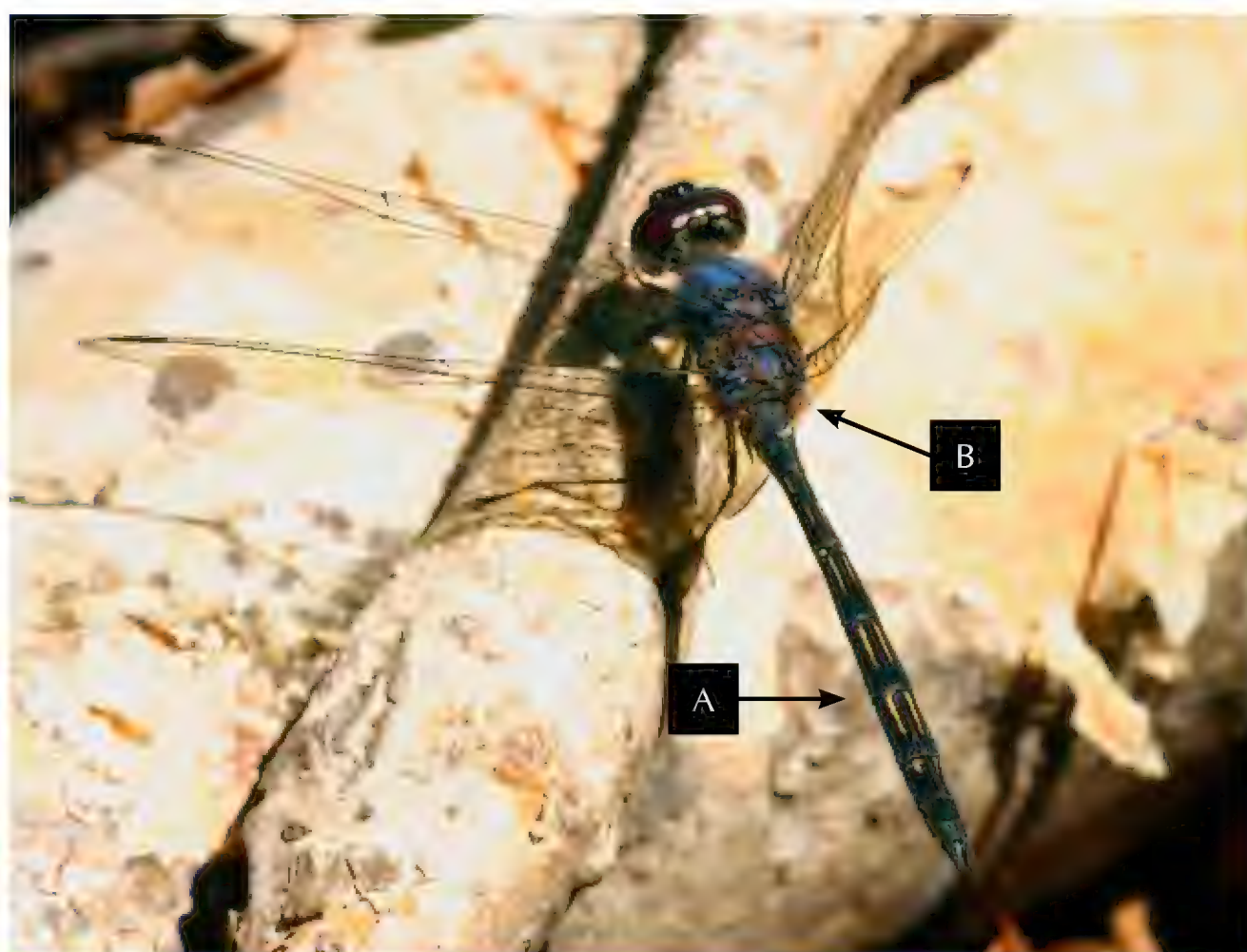
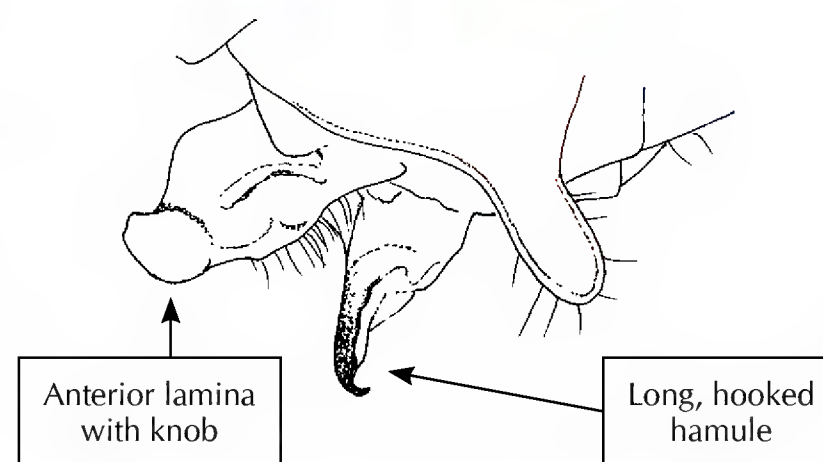


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- Slender
- Thorax mainly dark blue
- Abdomen brownish black with yellow dashes

- A. Abdomen slender, brownish black with fine yellow dashes
- B. Thorax pruinose dark blue with some dark brown showing through

Body length: 29–31 mm

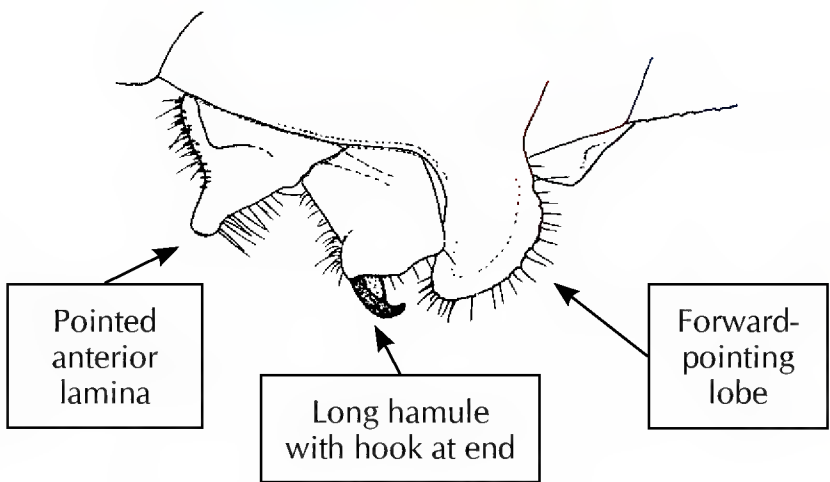
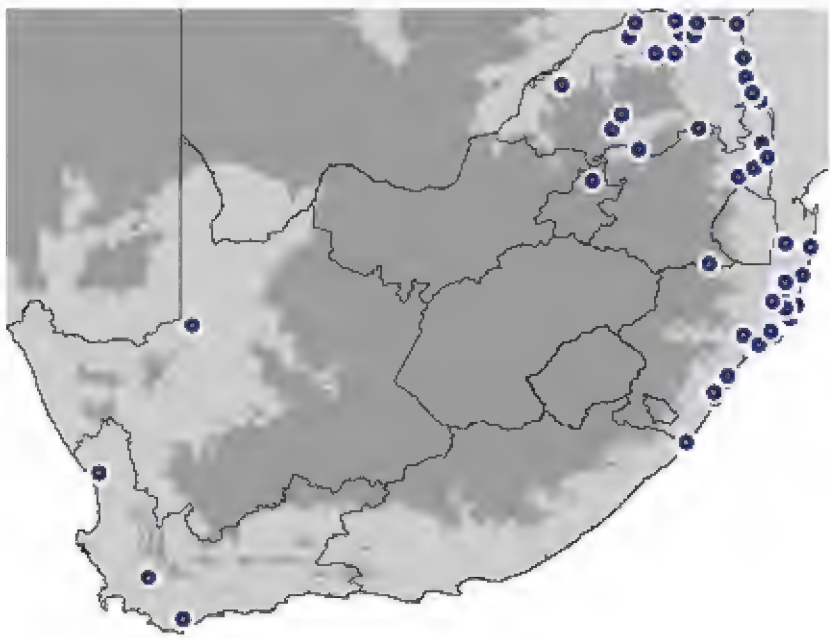
Hindwing length: 23.5–25.0 mm

Violet Dropwing

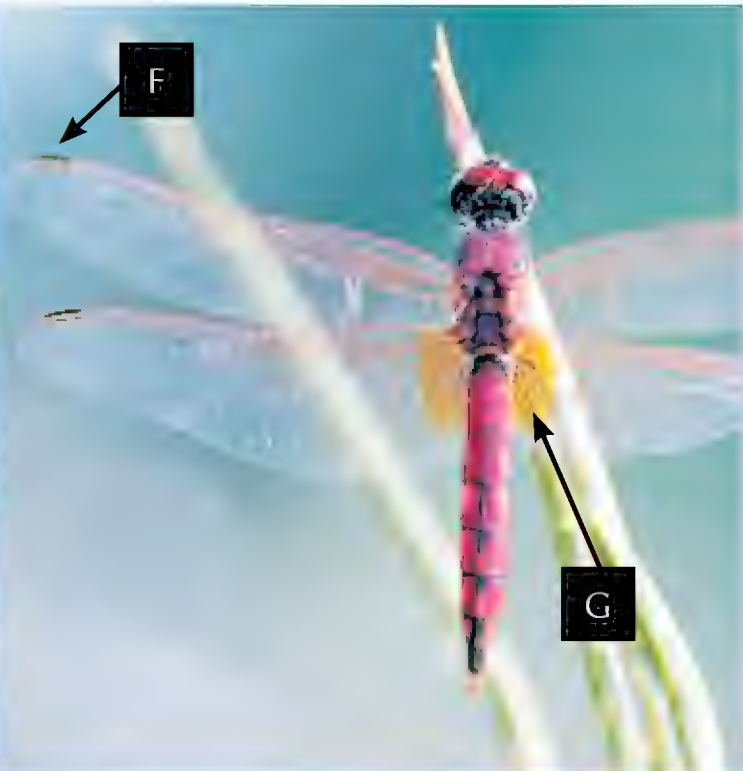
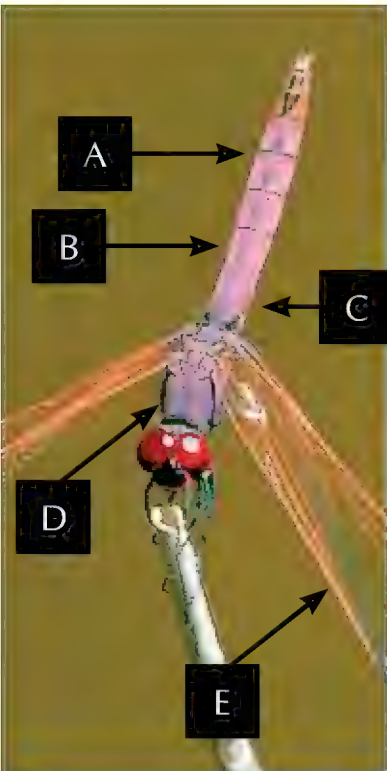
Trithemis annulata (Palisot de Beauvois, 1807)

Appearance: The Violet Dropwing is small to medium sized, distinctly stout and violet red. Face dark red. Labium dark yellow with small central dark brown dash. Labrum deep red with oval dark brown patch on lower margin. Anteclypeus, postclypeus and front of frons deep red. Top of frons and top of head metallic deep reddish purple. Eyes dark red with two whitish spots on hind margin. Thorax violet red (magenta), pruinescent, with dark stripes showing through on shoulder and at sides. Wings with distinctive red veins, hindwings with dark orange basal patches. Pterostigmas orange brown with blackish front margins, 3 mm long. Abdomen fairly stout, pinkish violet, with small fine deep purple dashes along the top of each segment. Segments 8 to 10 red, dashes black. Female similar in size, all dark brown and yellow, pterostigmas and wing patches similar, wings with orange rather than red veins.

Field notes: The Violet Dropwing is locally common from the Eastern Cape through coastal KwaZulu-Natal and across the northern provinces up to 200 m elevation. It is common in the Kruger National Park. There are a few scattered records in the Western Cape and the Northern Cape. It extends to Europe and West Asia, as well as Madagascar and the Mascarene Islands. It occurs at the edges of pools, marshes and sluggish reaches of rivers where bushes and trees are



nearby where it perches conspicuously on a twig or reed over the water. On hot days and evenings, it moves away from the water and perches on the ends of twigs of high trees. On the wing from November to May.



- Medium-sized
 - Reddish orange with brownish head and thorax
 - Two greyish to buff diagonal side stripes on thorax
- A. Small black marks
B. Pinkish violet abdomen
C. Small dashes along each segment
D. Violet red thorax
E. Wings with red veins
F. Orange brown pterostigmas
G. Orange basal patch on hindwing

Body length: 35–37 mm

Hindwing length: 30–31 mm



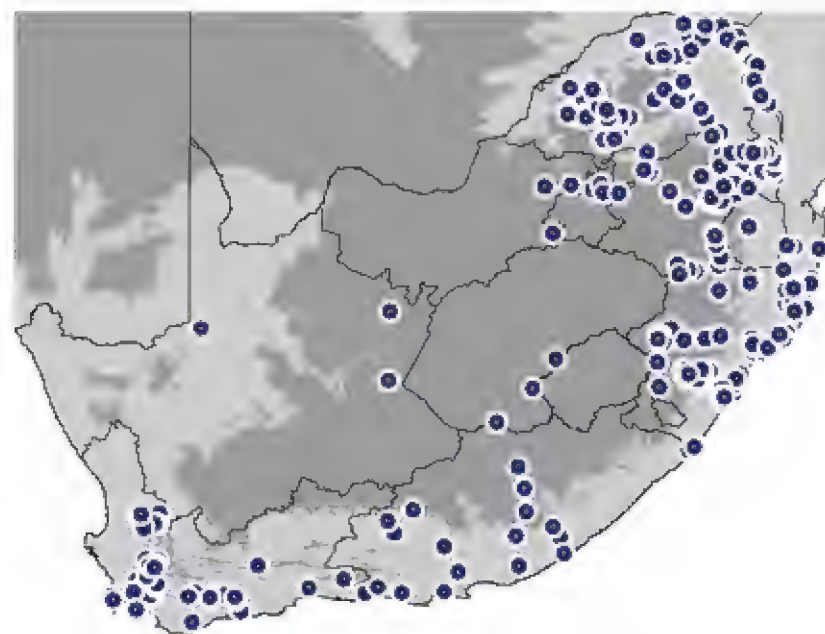


Red-veined Dropwing

Trithemis arteriosa (Burmeister, 1839)

Appearance: The Red-veined Dropwing is small, slender and bright red, with bright red wing veins and black on the sides of the tip of the abdomen. Face deep red. Labium deep yellow with central dark brown stripe. Labrum dark red with notched black patch on lower margin. Anteclypeus, postclypeus and front of frons dark red. Top of frons and top of head dimpled deep red with metallic purple sheen. Eyes bright red with greyish lower margin. Thorax red with purple bloom on top and indistinct black side stripes. Wings with bright red veins and light orange splashes at bases of all wings, splashes larger in hindwings and in Western Cape they can be almost brown, more broken and less extensive. Pterostigmas, 2.3–2.4 mm, deep reddish brown. Abdomen slender, bright red. In side view, segments 6 to 8 with black wedges that become increasingly large until segment 9, which is all black. Segment 10 black. Female dark brown, yellowish brown and straw coloured, also with orange wing splashes, distinct cream stripe that runs between wing bases present, Western Cape females with wings that have orange splashes around nodus.

Field notes: The Red-veined Dropwing is common throughout most of South Africa, in both lowland and highland areas. It extends to North Africa, the Canaries and West Asia. It is one of the most commonly seen species at pools, dams, marshes, as well as still and sluggish reaches of

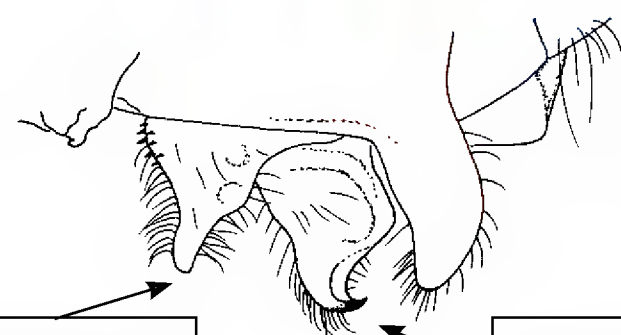


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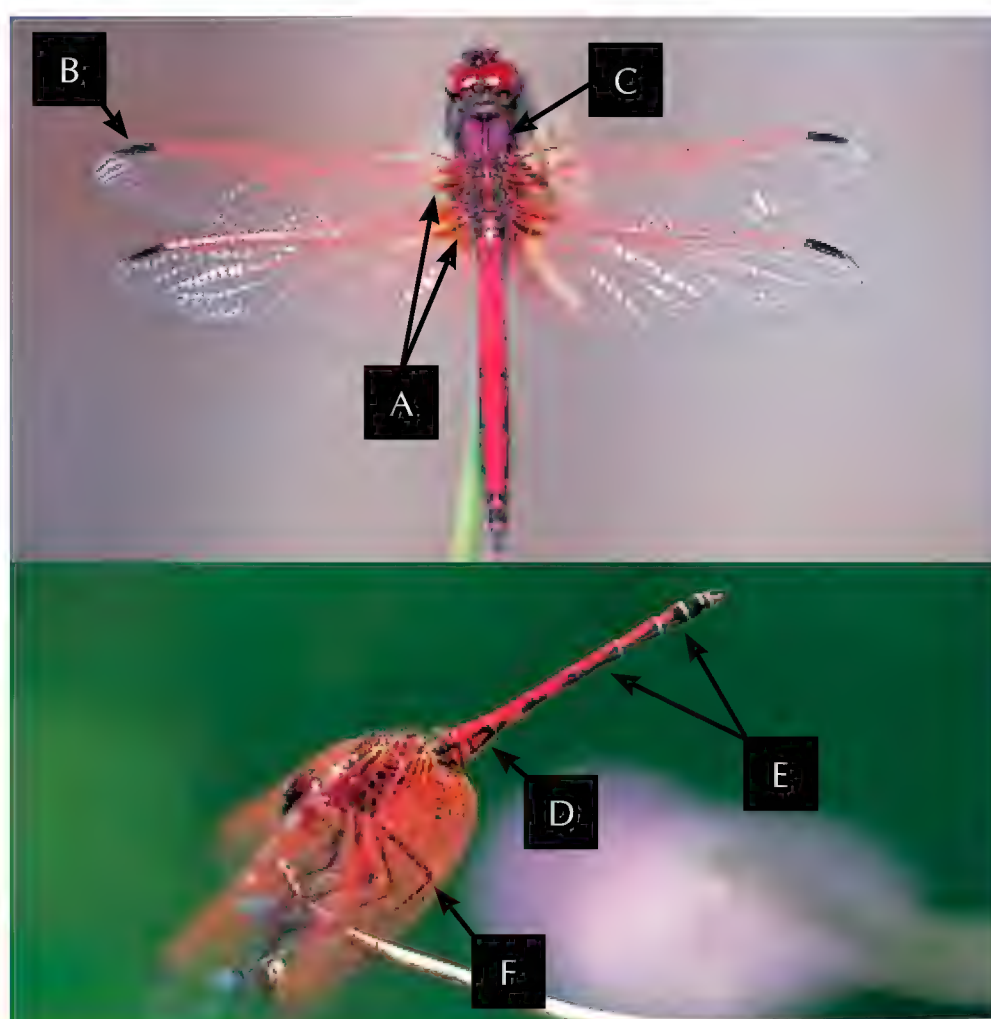
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Anterior lamina with a long point

Hamule with rounded hook

...rivers at various elevations. It perches conspicuously on emergent twigs or reeds at the water's edge. On hot days, it will move into the shade of trees. On the wing from October to May but is often also seen in winter.



- Slender and bright red
- Black wedges on abdomen become increasingly larger towards the tip
- Wings with orange to brown splashes

- A. Fore- and hindwings with orange to brown splashes
- B. Pterostigmas deep reddish brown
- C. Thorax with purple bloom
- D. Black surround red spot
- E. Abdomen with increasingly larger black wedges
- F. Distinctly red veins

Body length: 32–36 mm

Hindwing length: 26.0–27.5 mm

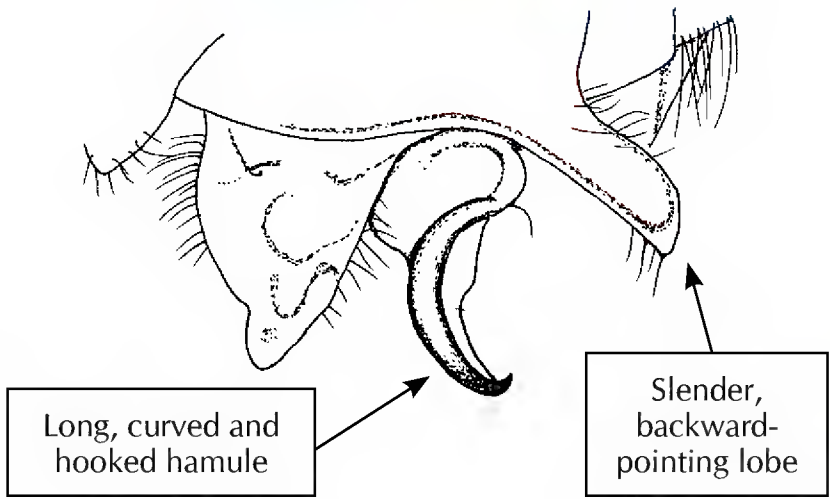
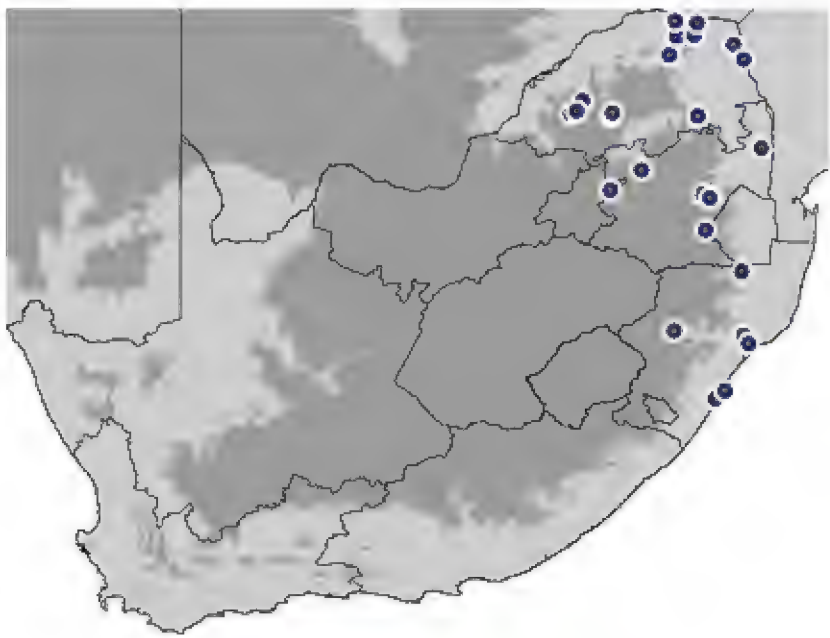
Denim Dropwing

Trithemis donaldsoni (Calvert, 1899)

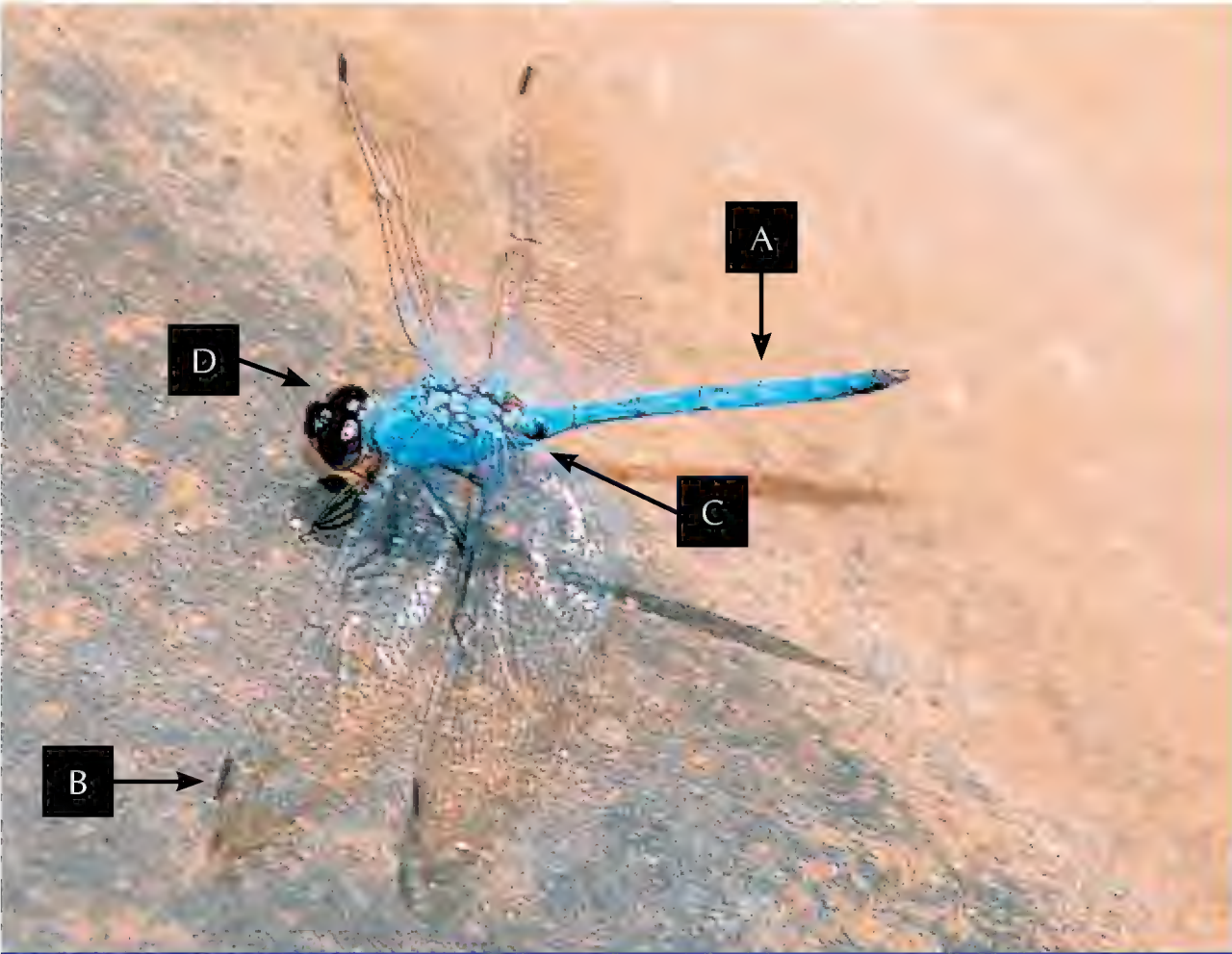
Appearance: The Denim Dropwing is medium sized, slender and all light powdery blue with a contrasting dark brown head. Face light brown. Labium light brown with diffuse central dark brown stripe. Labrum dark brown. Anteclypeus, postclypeus and side of frons light brown, with a dark brown indistinct line across postclypeus. Front and top of frons and top of head dimpled bright metallic bluish purple. Eyes dark brown with grey spot below. Thorax and abdomen even powdery pale blue with texture of pale blue denim material. Wings clear, basal patches absent. Pterostigmas dark reddish brown between black veins, underside pale yellowish brown, 3 mm, especially in the forewings. Abdomen slender, segment 10 and appendages black.

Female: slender. Face yellowish, metallic blue band across frons just below top of head. Thorax yellowish with black stripes. Pterostigmas light brown, pale grey on underside. Hindwings with small basal orange splashes. Abdomen black with yellow dashes.

Field notes: The Denim Dropwing is localised across mid-elevations in KwaZulu-Natal and the northern provinces. Its range extends to West Africa and to Ethiopia. Its habitat is shallow, rocky rivers in open hot savanna. It usually perches on stones midstream, and occasionally on twigs. It is very alert and will soon dart off with a strong



flight, usually to return to the same perch. The female is mostly far from water and rarely seen unless specifically looked for. On the wing from November to May.



- All pale pruinescent blue with a dark head
 - Perches on rocks in swift rivers in the north
- A. Pale cloth-like blue body
B. Pterostigmas dark reddish brown, pale yellowish brown underneath
C. No basal patches
D. Dark brown eyes and nose

Body length: 40.0–41.5 mm

Hindwing length: 32.0–33.5 mm





Highland Dropwing (Round-hook Dropwing)

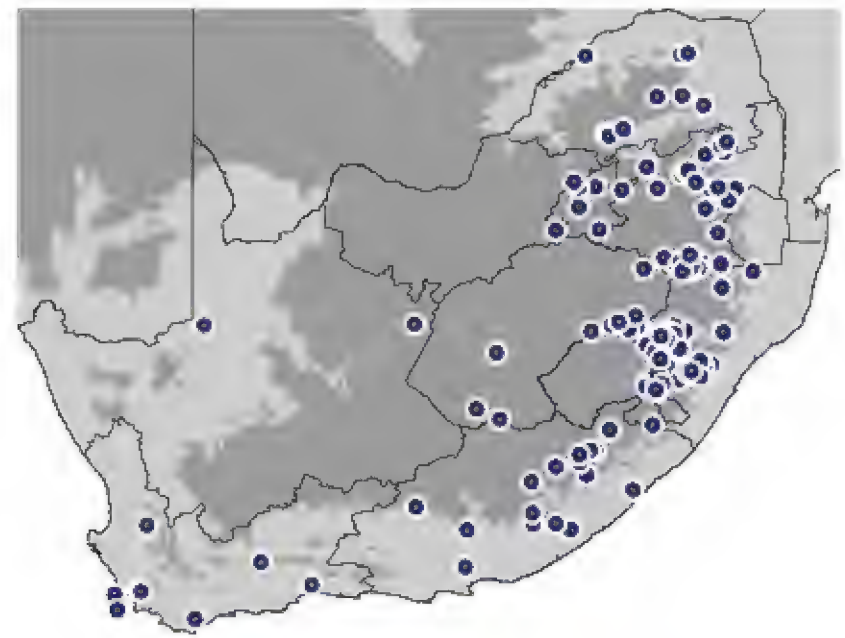
Trithemis dorsalis (Rambur, 1842)

Appearance: The Highland Dropwing is medium sized and deep blue. Face light yellow brown, dark brown and black. Labium pale yellow with very wide central black stripe. Labrum black. Anteclypeus light brown. Postclypeus dark brown in front, light yellow brown at sides. Frons dark brown in front, light yellow brown at sides. Frons above and head above dimpled metallic bluish purple. Eyes dark purple brown, lighter below. Thorax and abdomen deep blue. Wings clear, small basal amber patch present on hindwing. Pterostigmas brownish black, 3 mm, outer vein often with a whitish border.

Female: yellowish with black markings. Thorax with two pairs of diagonal black zigzag lines. Wings with small smoky patches near bases and at nodus. Abdomen with wide black band running along top. Pterostigmas yellowish brown, becoming dark brown with age.

Note: it is rarely possible to distinguish the male Highland Dropwing from the male Navy Dropwing in the field. The presence of a white outer vein in the pterostigma would suggest the Highland Dropwing, further corroborating habits include its high elevation territory and still water habitat, as well as its tendency to perch on grasses. However, the only definitive identification characteristic is the shape of the hamule hook, which is rounded in the Highland Dropwing, but claw-shaped in the Navy Dropwing. From an assessment point of view, separating the two species is not of concern as both have a DBI of 0.

Field notes: The Highland Dropwing is principally a Drakensberg and highveld species,

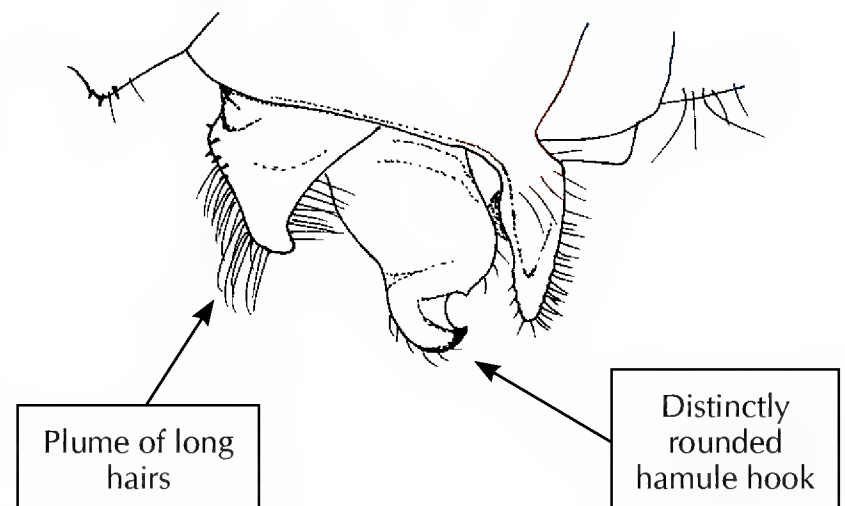


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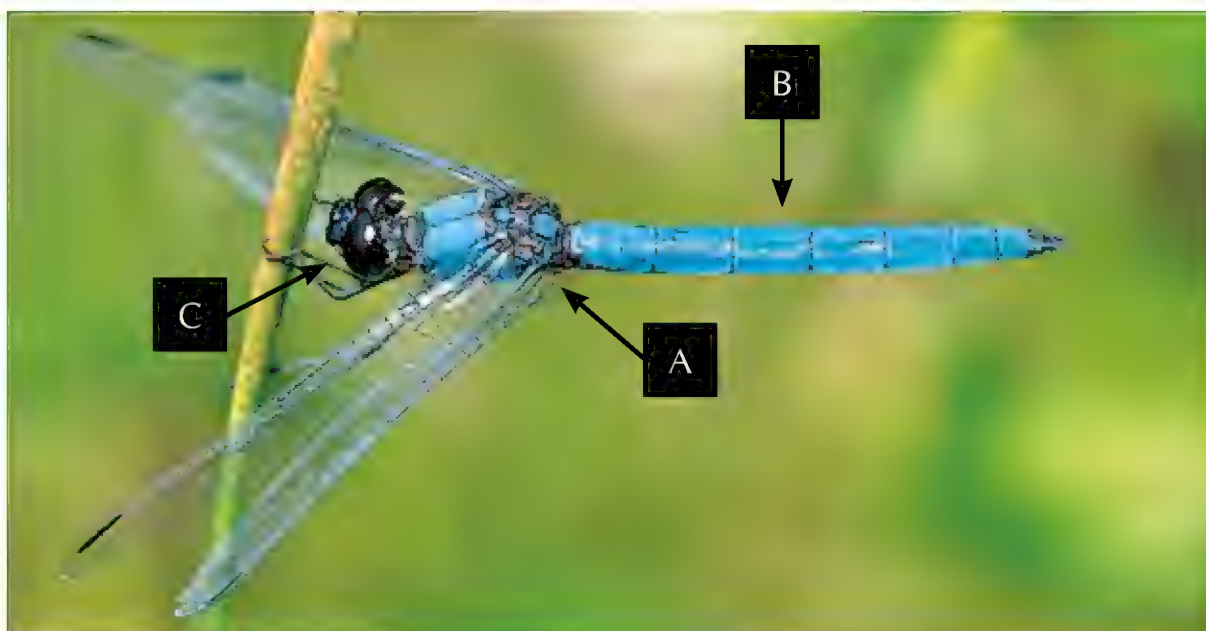
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usually above 700 m elevation, although it does occur at lower elevations in the Western Cape. It is generally absent anywhere near the coast, with the exception of the Cape Peninsula and Umtamvuna. It extends to East Africa. Its habitat is mostly large lakes and dams, and also still reaches of rivers – rarely associated with small pools or swift rivers. It perches on tall grass stems or reeds at the water's edge and rarely on stones. The female is usually nearby. On the wing from November to May.



- All deep blue with dark eyes
- Usually indistinguishable from Navy Dropwing in the field (see diagnostic notes above)

- A. Small basal amber patch
- B. All deep blue body
- C. Eyes dark purple brown

Body length: 37.5–38.5 mm

Hindwing length: 27.5–29.0 mm

Navy Dropwing

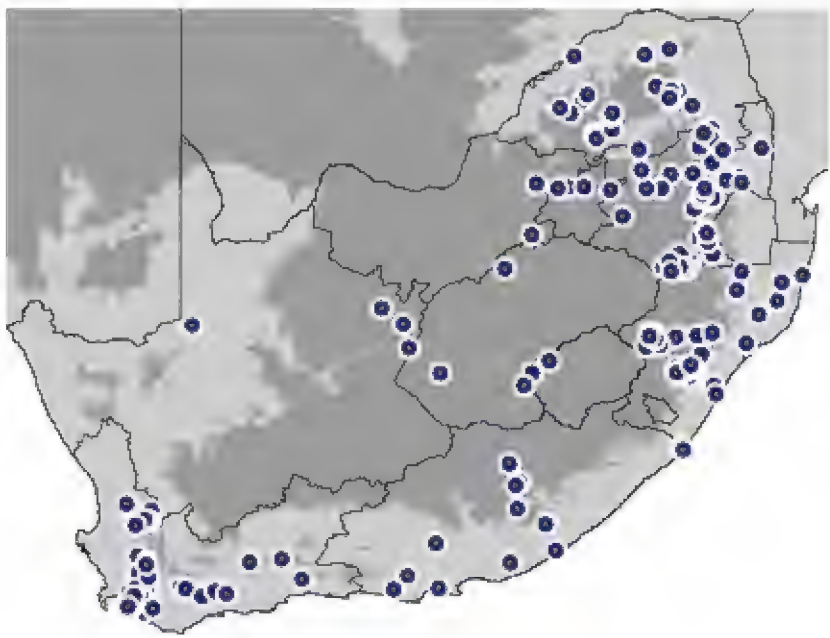
Trithemis furva Karsch, 1899

Appearance: The Navy Dropwing is medium sized and dark blue. Face light yellowish brown, dark brown and black. Labium pale yellow with wide central black stripe. Labrum black. Anteclypeus light brown. Postclypeus dark brown at back, light yellow brown at sides. Frons dark brown in front, light yellowish brown at sides. Frons above and top of head dimpled, metallic bluish purple. Eyes dark purplish brown, lighter below. Thorax and abdomen dark blue. Wings clear with very small basal amber patch on hindwings. Pterostigmas brownish black, 3 mm.

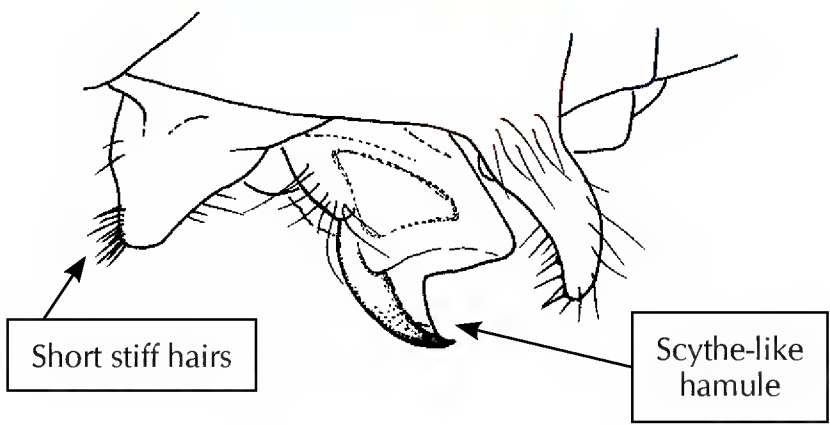
Female: yellowish with black markings. Thorax with black zigzag line along side. Abdomen with narrow black stripe running along its top. Wings each slightly smoky around nodus and tip, hindwings with small basal splash. Pterostigmas yellowish brown, becoming dark brown with age.

Note: distinguishing the male Navy Dropwing from the male Highland Dropwing is difficult. The Navy Dropwing sometimes has a white line on the pterostigma, but only underneath the wing, which is difficult to see. The habitat and elevation are the best ways of getting a preliminary identification but definite identification can only be established by looking at the secondary genitalia under a hand lens. The hamule hook in the Navy Dropwing is long and claw-like, whereas in the Highland Dropwing it is a small rounded hook. The females are relatively easy to tell apart by comparing the patterning of the thorax. From an assessment point of view, separating the two species is not of concern as both have a DBI of 0.

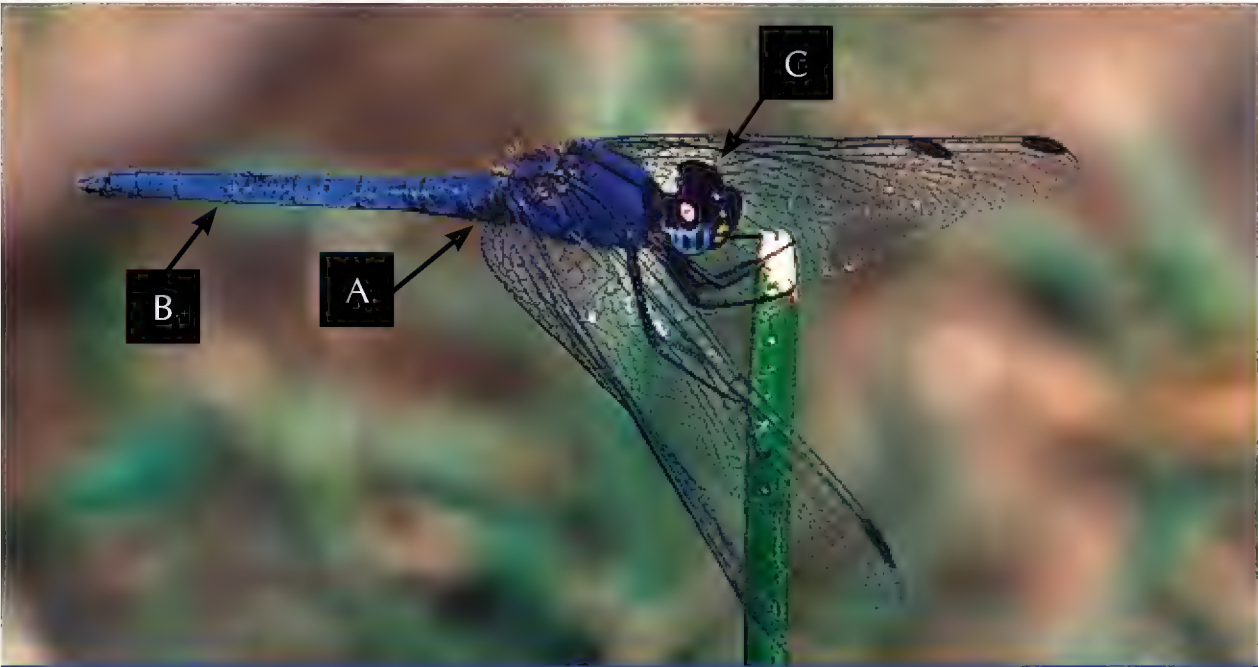
Field notes: The Navy Dropwing is common below 700 m elevation throughout much of the country. It occasionally occurs at higher eleva-



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tions, especially in the Limpopo Province, with occasional records over 2 000 m elevation. It is localised on the highveld and it extends to West Africa and Ethiopia. Its habitat is mostly shallow, rocky rivers with clumps of tall grasses among the rocks. It is rarely seen at pools or still reaches of rivers. It usually perches on rocks in the river, where it looks almost blackish. It also perches on twigs and reeds at the water's edge. The female is usually away from the water among tall grasses or small bushes. On the wing all year but is only common from October to May.



- All deep blue with dark eyes
 - Usually indistinguishable from Highland Dropwing in the field (see notes above)
- A. Small basal amber patch
B. All deep blue body
C. Eyes dark purple brown

Body length: 37.5–38.5 mm

Hindwing length: 27.5–29.0 mm





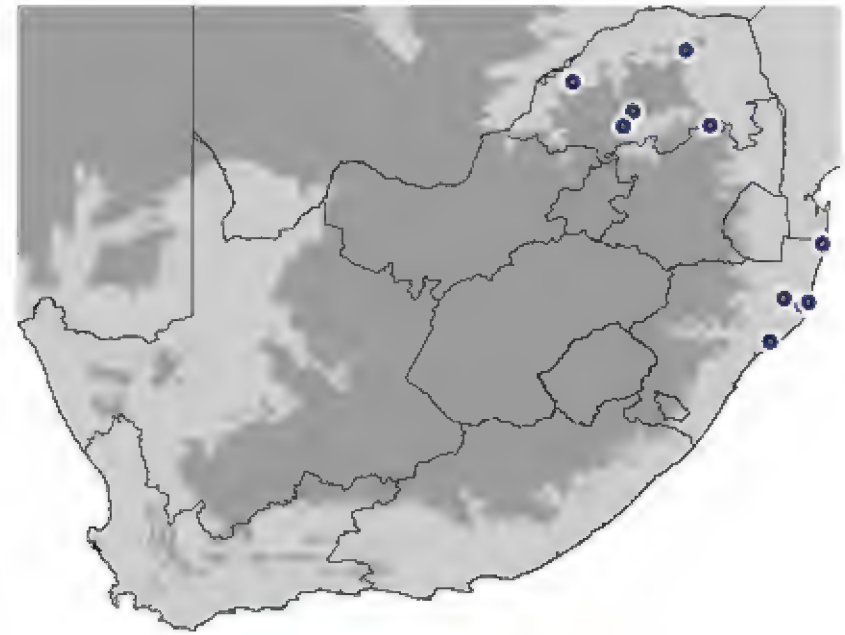
Silhouette Dropwing

Trithemis hecate Ris, 1912

Appearance: The Silhouette Dropwing is medium sized, blackish blue and distinctly slender. Face brown. Labium light brown with large dark brown central area. Labrum dark brown. Anteclypeus light brown. Postclypeus dark brown. Frons light brown with dark brown margins. Frons and top of head dimpled, bright metallic mauve. Eyes deep purple brown. Thorax dark blue. Ring of whitish hairs present on front of thorax and behind head, blackish hairs present on rest of thorax. Wings clear to slightly smoky with small dark brown basal splash on hindwings. Pterostigmas buff between blackish veins, slightly lighter on underside, 2.9–3.0 mm. Abdomen blackish with light brown, indistinct markings.

Female slender, yellowish and black. Face pale yellow with black hairs. Top of head metallic, metallic band present on frons below top of head. Thorax with contrasting black and yellowish patches. Hindwings with small basal amber patch. Abdomen black with yellow dashes.

Field notes: The Silhouette Dropwing occurs in coastal northern KwaZulu-Natal and in the northern provinces. Its range extends to West Africa and East Africa, as well as Madagascar. It inhabits pools and lakes with margins where reed stems become sparse further out in the water. It is very alert, perching on single reed stems, of-

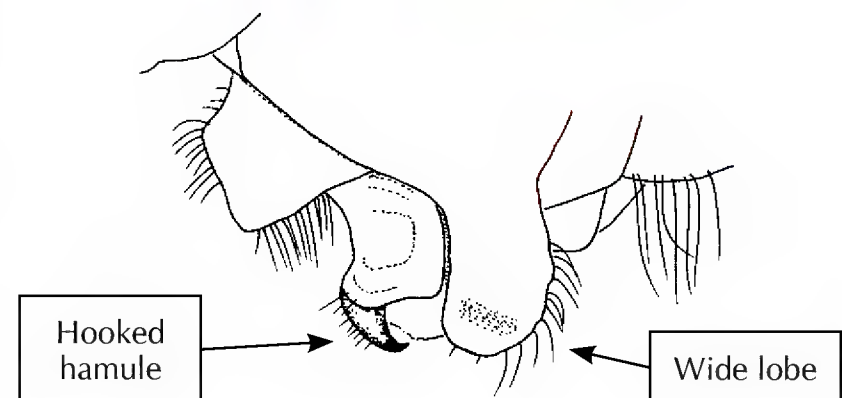


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ten far from the bank. It usually appears blackish, like a dark silhouette against the brightness of the open water. The female perches on twigs among trees, often far from water. On the wing from November to May.



- Slender and dark blue thorax
- Appears black, as it perches on tip of reed far out from bank of pool

- A. Light pterostigmas and even lighter on underside
- B. Slender, blackish with light brown markings
- C. Small, dark brown basal patch
- D. Dark blue thorax

Body length: 40.5–43.0 mm

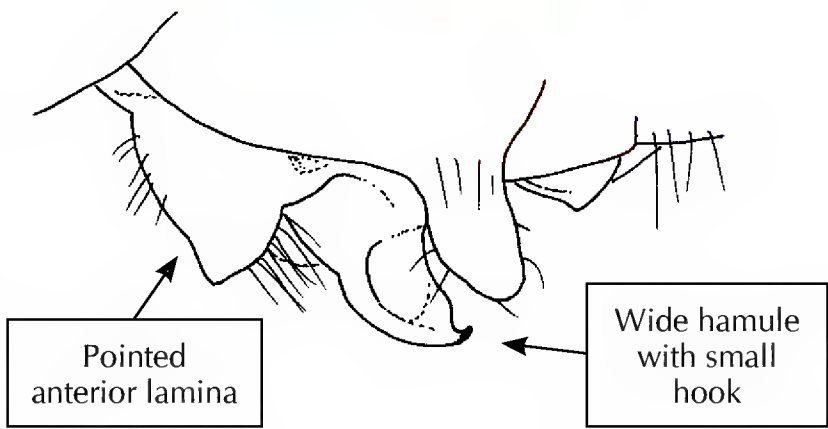
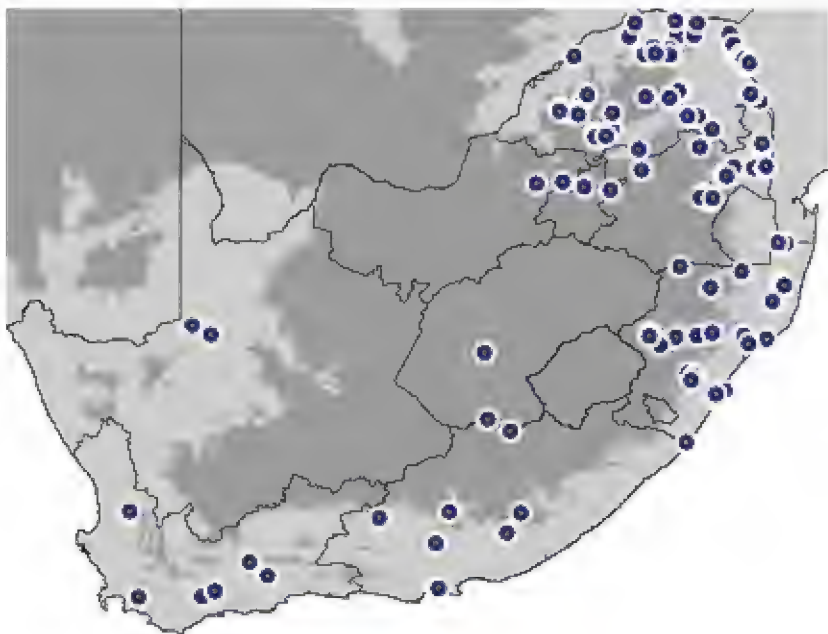
Hindwing length: 30.5–31.0 mm

Orange-winged Dropwing (Kirby's Dropwing)

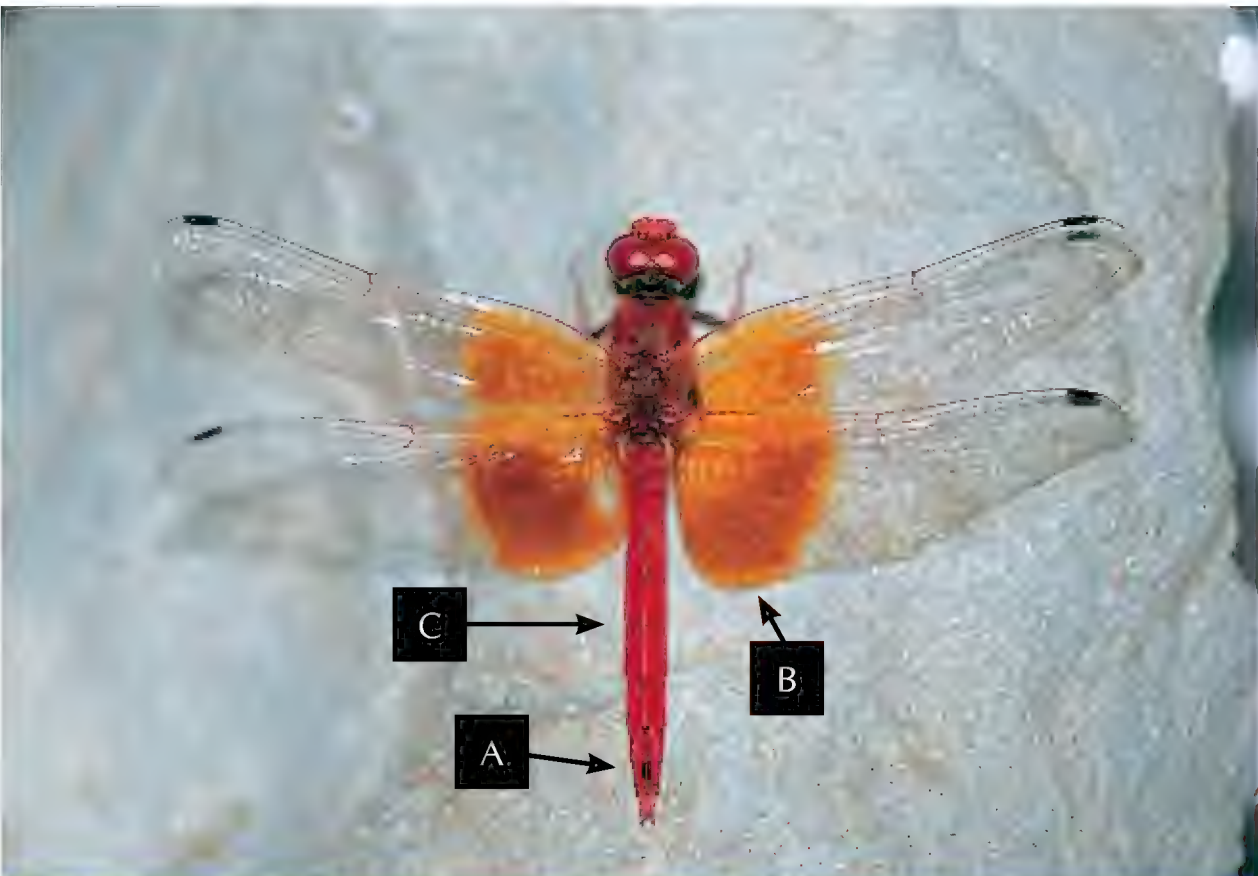
Trithemis kirbyi Sélys, 1891

Appearance: The Orange-winged Dropwing is small to medium sized, bright orange red, with large orange splashes on the bases of all wings. Face bright light red. Labium yellow brown, unmarked. Labrum, anteclypeus, postclypeus and entire frons bright light red. Frons with high peaks. Top of head brownish red with high peaks. Eyes bright red above, darker and greyish below. Thorax bright red above, deep red on sides with browner areas and short black wavy lines. Wings with red veins, large orange splashes present covering about a third of length of all four wings. Pterostigmas bright reddish brown with orange outer margins, paler on underside, short (2 mm). Abdomen bright orange red with fine black dashes along upper surfaces of segments 8 to 10, widest on segment 9. Female unlike male, yellowish to greenish above with faint brown stripes, prominent peaks on frons and top of head present, wing with only faint spotty basal amber patch at bases of hindwings.

Field notes: The Orange-winged Dropwing is distributed throughout South Africa, but is most common from northern KwaZulu-Natal to the northern provinces. It is one of the most conspicuous species in the Kruger National Park and it extends to West Africa, the Arabian Peninsula and Asia. It occurs in shallow, rocky rivers and rocky pools, even temporary ones in arid areas and hot savanna; also common around swimming pools and water troughs. It is conspicuous



with its bright colours as it perches on rocks. The female is rarely seen but will typically dart across a river pool to cast its eggs, soon to be pursued by a male. When water levels drop and the air temperature is high, the male may perch on twigs over pools that are drying out. On the wing from November to May, although winter individuals are also often seen.



- All red
 - Large orange splashes on wings
 - Mostly perches on rocks
- A. Small black dashes
B. Large orange splashes continuous from front wings to back wings
C. All red body

Body length: 35–38 mm

Hindwing length: 25.0–26.5 mm



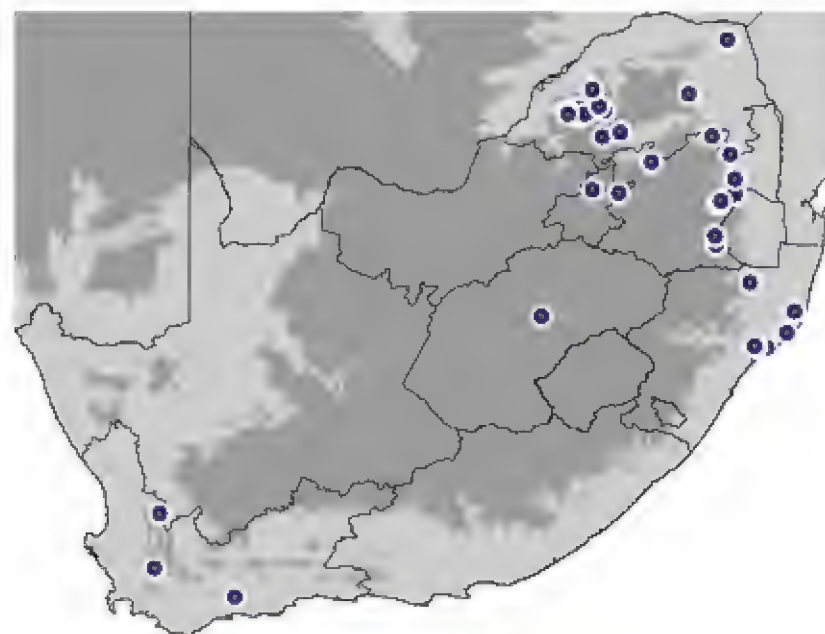


Russet Dropwing (Riffle-and-reed Dropwing)

Trithemis pluvialis Förster, 1906

Appearance: The Russet Dropwing is medium sized and bright orange, tending to bright red, with small rounded orange splashes on the hindwings. Face all light orange. Top of frons and top of head bright metallic golden purple, dimpled, with barely any peaks. Eyes orange brown with black speckle midway. Thorax dull orange with indistinct diagonal blackish lines. Wings clear, hindwings with distinct semi-circular orange patches at their bases, forewings with a little orange that follows the main veins, veins bright orange red. Pterostigmas deep brownish black with lighter hind margins, especially on underside, 3.2 mm long. Abdomen bright orange tending to bright reddish orange with thin blackish stripe running along top of segments 8 and 9. Segment 9 also black on side. Segment 10 mostly black with orange appendages, except for tips. Female stouter, all mottled yellowish, orange and dark brown, hindwings with indistinct orange splash, which is not as extensive as in male, pterostigmas with more distinct pale margin.

Field notes: The Russet Dropwing is localised at middle and higher elevations of 600 to 1 500 m in KwaZulu-Natal and the northern provinces. It is also occasionally seen in lowland rivers in the Western Cape and it extends to East Africa. Favours swift, wide, rocky rivers in bushy savanna or fynbos with extensive reedy margins. Often

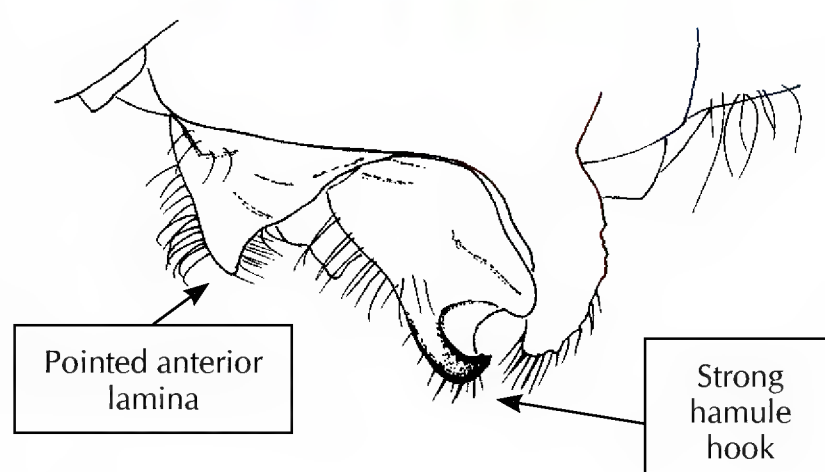


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seen singly and in isolated and unexpected localities. It is conspicuous as it perches on reeds on the margins of riffles. On the wing from November to April.



- All bright orange to light red
- Large round orange patch on hindwing
- A. All bright orange to light red abdomen
- B. Black marks on top and bottom of last three segments
- C. Large, circular orange patch in hindwing
- D. Same orange which follows veins on forewing

Body length: 37–39 mm

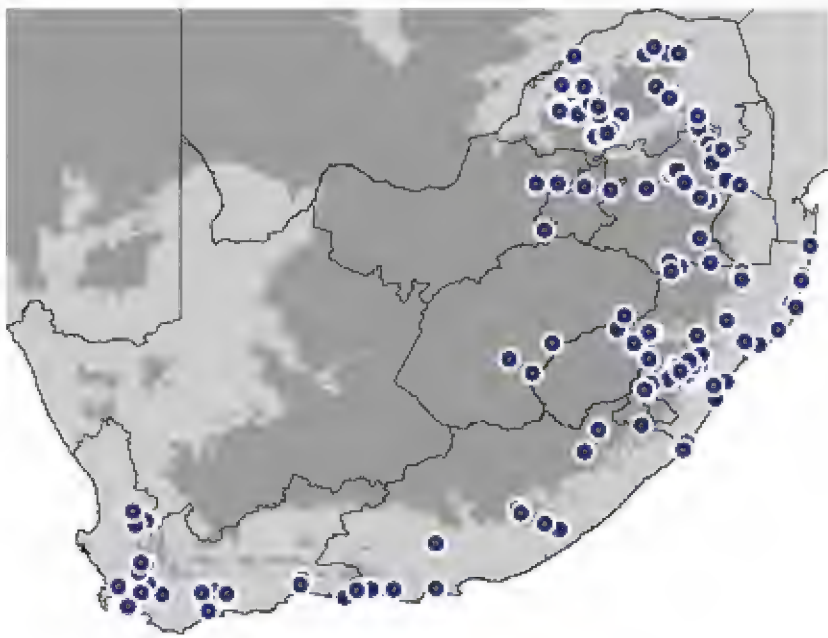
Hindwing length: 29–30 mm

Jaunty Dropwing

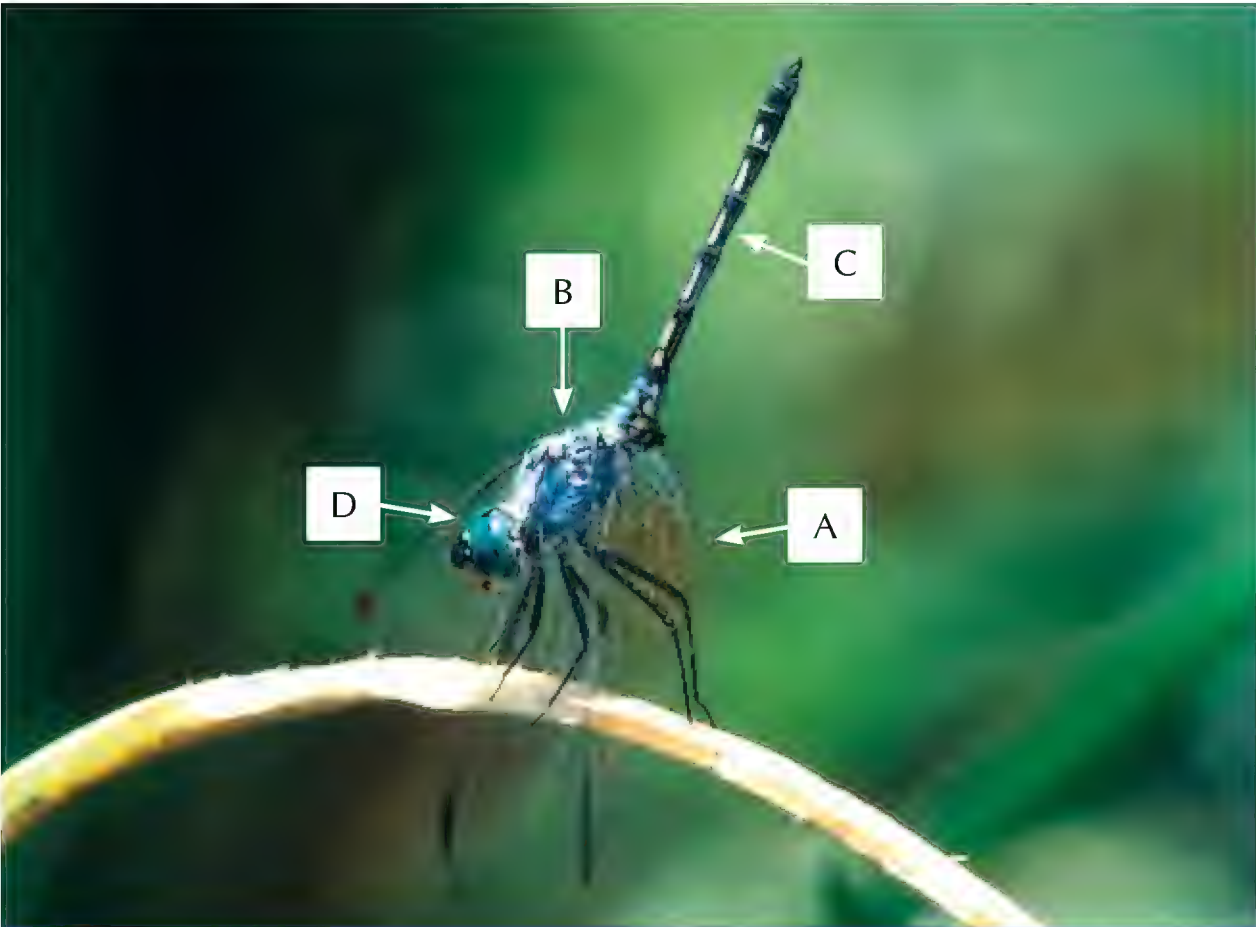
Trithemis stictica (Burmeister, 1839)

Appearance: The Jaunty Dropwing is small with a characteristic powdery blue thorax and a black abdomen with yellow dashes. Face pale yellow. Labrum with central black band and black margins. Top of frons and top of head bright metallic turquoise, top of head without peaks, back of head bright black and yellow. Eyes turquoise with dark mottles. Thorax in front and on top bright light pruinescent blue, lower hind area black and yellow becoming pruinescent with age. Wings slightly smoky, faint central orange brown circular patch present on hindwings that is only visible against a light background, Western Cape individuals generally with overall darker wings, veins black. Pterostigmas dark brown between black margins, 4.1–4.3 mm long. Abdomen black with bright yellow dashes along most of its length. Segments 9 and 10 and appendages all black. Female overall dark from above, distinct yellow stripe present between wings, thorax side with central zigzag stripe, abdomen with yellow markings mostly along sides, central orange patch absent from hindwing, young Western Cape individuals with brown leading edges on all wings.

Field notes: The Jaunty Dropwing occurs throughout much of South Africa from sea level to 2 000 m elevation, although it is largely absent from the Karoo and the northwestern areas. Its range extends to West Africa and Ethiopia and it occurs along the margins of pools and quiet reaches of rivers and streams. Alert as it perches



conspicuously on a stick on reed at a pool or river margin, often darting out to defend its territory. Frequently seen on hot days with its abdomen in the upright obelisk position and its wings forward. On the wing from November to May, although occasional individuals may be seen in winter, even in the Western Cape.



- Pale blue with black and yellow abdomen
- Diffuse orange brown patch on hindwing
- A. Diffuse, round orange brown patch
- B. Pale blue thorax
- C. Black abdomen with yellow dashes
- D. Turquoise eyes

Body length: 35–37 mm

Hindwing length: 26.5–28.0 mm



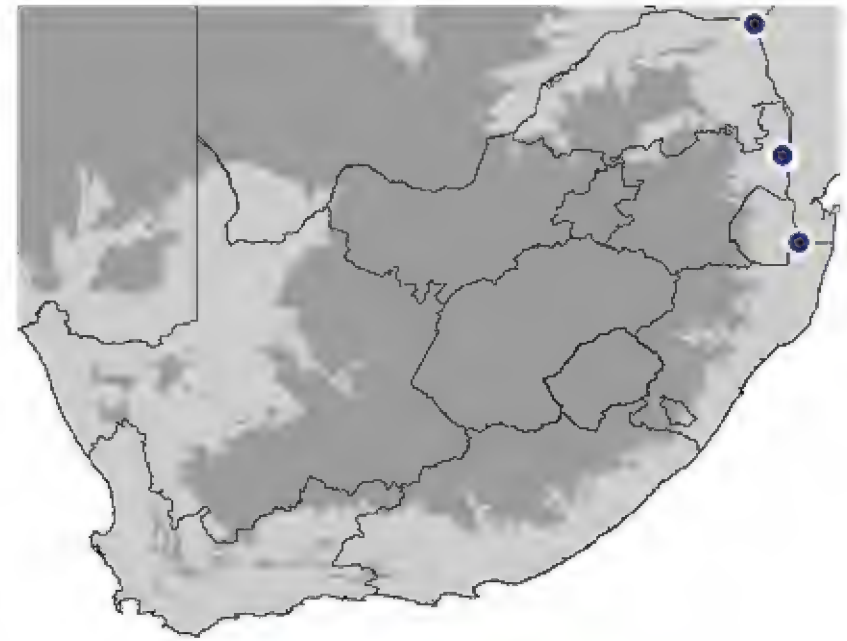


Elegant Dropwing

Trithemis weneri Ris, 1912

Appearance: The Elegant Dropwing is medium sized, slender and all orange or light red. Face, including top of frons and top of head all light orange. Labrum with central dark brown triangle. Anteclypeus light brown below, buff above. Eyes with reddish brown cap, mostly greyish brown with dark spots. Thorax dull orange with reddish brown shoulder stripes and narrow blackish connected side stripes. Wings clear with black veins, main veins light brown on underside, fairly large roundish transparent orange patch present at base of hindwings. Pterostigmas deep reddish brown, almost black, 4 mm long. Abdomen slender, orange red, heavily marked at joints, especially side view of segments 5 to 10, giving it a striped appearance when viewed from the side. Segment 9 nearly all black with small oval orange red patch. Segment 10 black. Appendages light at base, black for most of their length. Female similar, yellowish, black markings less extensive, basal orange patch on hindwings absent.

Field notes: The Elegant Dropwing is highly localised and only known from the northeastern parts of South Africa, especially along the Sabie River close to the national border with Mozambique. It extends to Sudan and occurs along wide, swift, open rocky and reedy savanna rivers with an abundance of *Phragmites* reeds and where there are large trees lining the upper banks. This elegant dragonfly is alert as it perches on the tips of twigs on the tops of bushes or

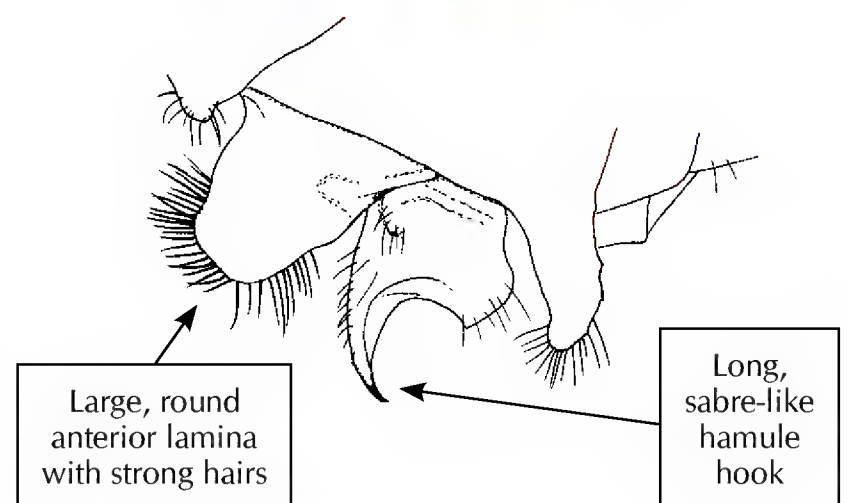


Threat

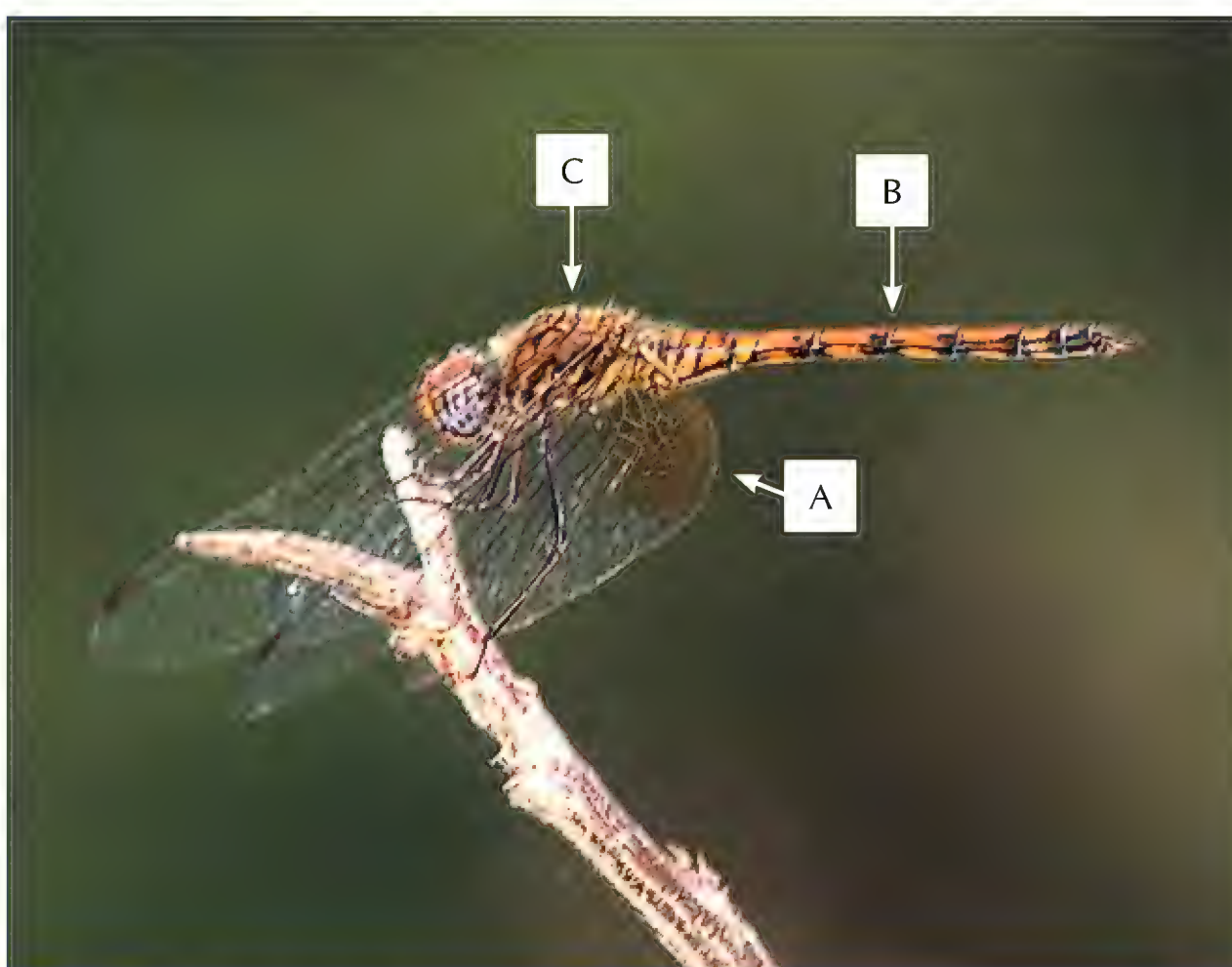
LC

DBI

5



below the high tree canopy, facing the river. It is often more than 100 m from the water. The female perches in the same habitat. On the wing from November to May.



- Slender, orange to light red abdomen with blackish brown markings
- Large diffuse orange patch on hindwing
- Only in north of South Africa

- A. Diffuse, semi-transparent, roundish patch at base of hindwings
- B. Slender, orange to light red abdomen with blackish brown joints
- C. Orange thorax with blackish narrow stripes

Body length: 38–39 mm

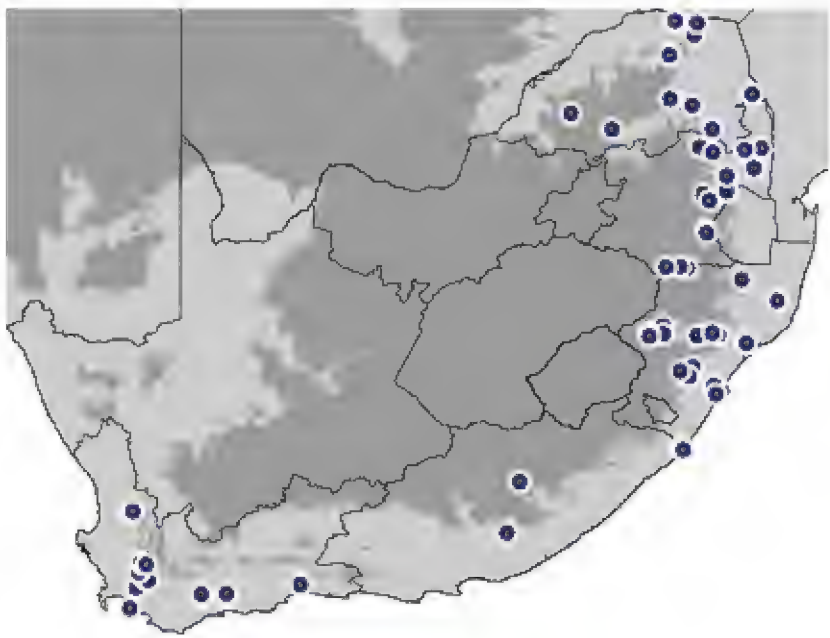
Hindwing length: 30–32 mm

Blue Cascader (Scuffed Cascader)

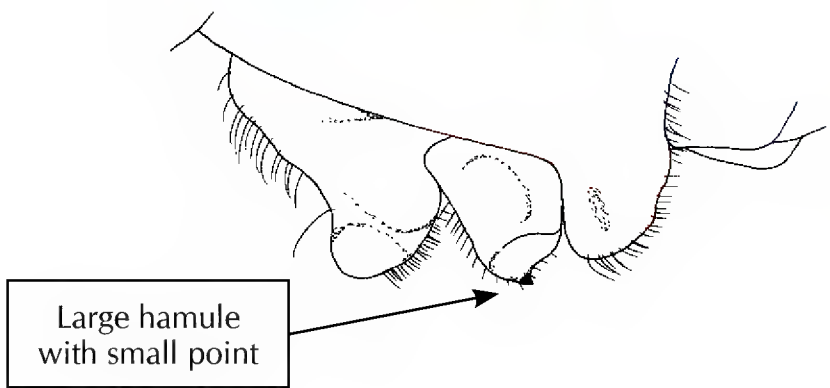
Zygonyx natalensis (Martin, 1900)

Appearance: The Blue Cascader is fairly large and blackish brown with a thin blue pruinescence that is usually patchy and scuffed. Face light brown in front, dark metallic blue above. Labrum yellow brown with blackish margin and central dark dimple. Anteclypeus and postclypeus light brown. Frons yellow brown in front, bright metallic blue and dimpled above extending to peaks on top of head. Eyes dull turquoise to grey. Thorax mottled light and dark brown, slightly metallic, with long hairs on top front. Recently mature individuals covered with a thin pale blue pruinescence, although overall appearance is one of dark blue, becomes scratched and scuffed with age. Shoulders with long, dense white hairs. Wings clear, becoming smoky with age. Pterostigmas dark yellowish brown, lighter on underside, 3.2 mm. Abdomen blackish brown with straw-coloured streaks. Segment 1 to first half of segment 3, and segments 7 and 8 with a thin cover of pale blue pruinescence which creates a dark blue appearance. Segments 4 to 7, segment 10 and appendages blackish.

Female: more robust, slightly larger. Wings smoky, particularly with age. Thorax dark brown, slightly metallic with yellowish to light brown markings. Pterostigmas dark yellow brown, 3.7 mm. Abdomen dark brown with yellow-brown side markings. Segment 7 with fine yellow line along top of first half. Segment 8 also with fine yellow line along top, but shorter and wider, almost spot-like. Young individuals in the Western Cape with amber leading edge to forewings and small amber patch at base of all wings.



Threat	DBI
LC	2



Field notes: The Blue Cascader is locally common in central KwaZulu-Natal and the northern provinces, up to 1 000 m elevation. It also occurs in the Western Cape and the Eastern Cape where it is highly localised. It frequents rocky rivers with waterfalls, riffles and glides, usually bordered by bushes and trees. It also hawks among bushes and trees away from water. It flies rapidly up and down, and hovers low over riffles and splash zones. On the wing from September to May, most abundant in October and November.

- Blackish brown with thin pruinescence
- Mostly seen hawking back and forth over rapids

A. Two-tone abdomen
B. Fine, long hairs
C. Thin pruinescence
D. Blackish brown body with straw-coloured patches

Body length: 50–52 mm

Hindwing length: 38–40 mm



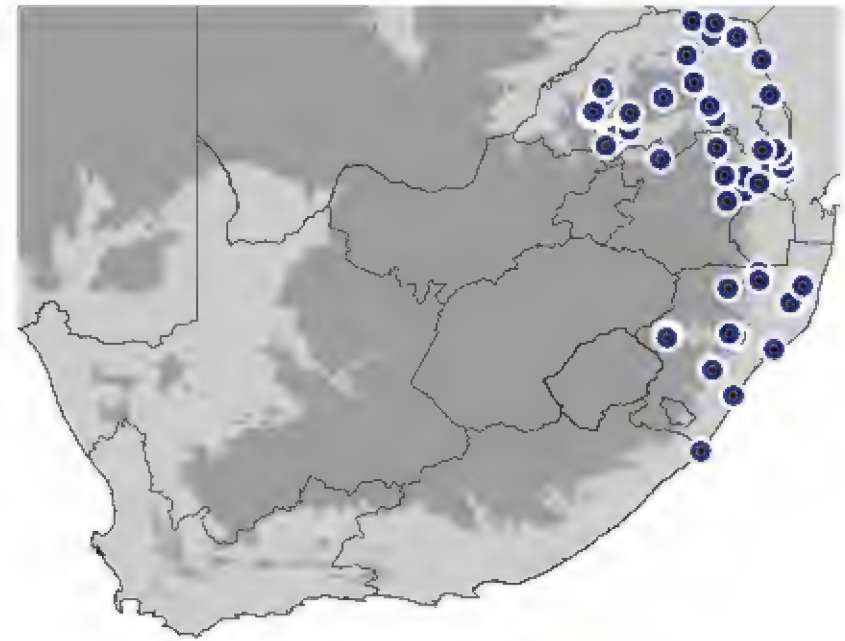


Ringed Cascader

Zygonyx torridus (Kirby, 1889)

Appearance: The Ringed Cascader is large, black and yellow, with a partially ringed abdomen. Face yellow brown to dark brown in front, blackish metallic above. Labrum and anteclypeus dark brown. Postclypeus dark brown, dull yellow at sides. Frons yellow brown to dark brown along margin and at sides, lightly dimpled black metallic purple in front and above. Top of head shiny dark brown, slightly metallic. Eyes blackish brown. Thorax slightly metallic black, with some indistinct broken yellow stripes. Wings clear and pointed, becoming slightly smoky with age. Pterostigmas long and black, can be variable in length, sometimes longer in forewing, 4.0–4.8 mm, compared to 4.2–4.5 mm in hindwing. Abdomen black with yellow side patches and fine yellow lines on top of each segment, yellow patches almost connected on segments 6 and 7, faint on segment 9, in the field giving the appearance that the abdomen is ringed in black and yellow. Segment 10 and appendages black. Female similar to male, with black and yellow stripes on thorax distinct and top of head dull brown.

Field notes: The Ringed Cascader is common in KwaZulu-Natal and the northern provinces up to about 800 m elevation. Its range extends to Europe, India and Mauritius. Its habitat is streams and shallow rivers with bush-lined or open banks. It hawks up and down over riffles and glides, hovering over open stretches of fast wa-

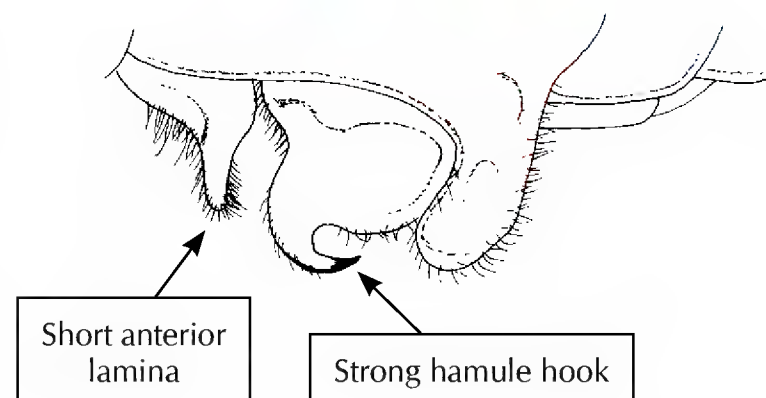


Threat

LC

DBI

2



ter, or flies rapidly and high over and between bushes and trees away from the water, both in the day and at dusk. The female is rarely close to the water and usually found hawking among bushes and trees. On the wing from November to April.



- All black and yellow
- Wings 44–45 mm long
- A. Fine yellow dorsal lines along top
- B. Bright yellow spots
- C. Blackish eyes

Body length: 53–54 mm

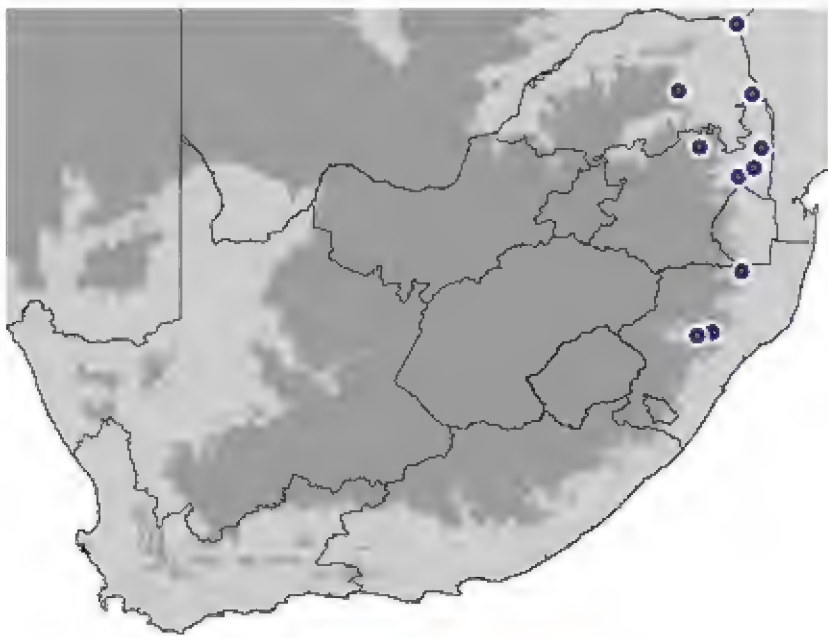
Hindwing length: 44–45 mm

Southern Riverking (Robust Riverking)

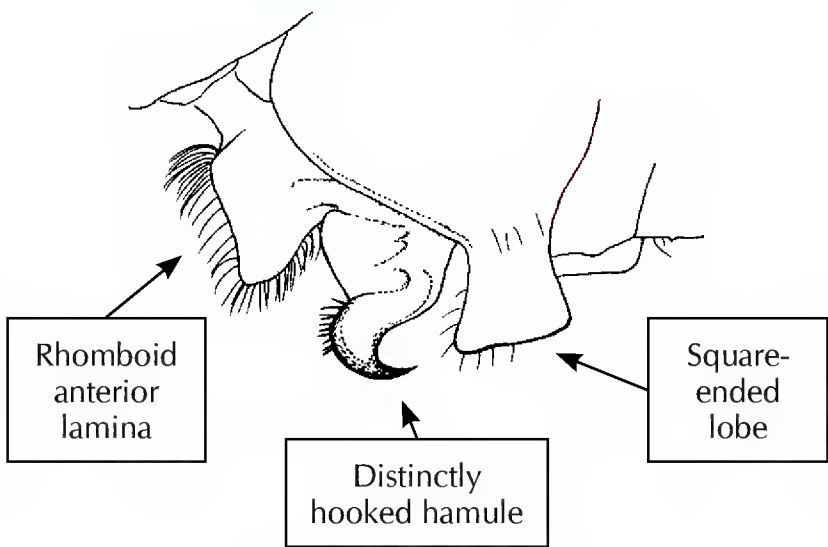
Zygonoides fuelleborni Grünberg 1902

Appearance: The Southern Riverking is fairly large to large, mostly blackish with a few dull yellow spots. Face yellow, black and grey. Labrum pale yellow with fine blackish margin and two central greyish dots. Anteclypeus and postclypeus light grey. Frons grey in front and top corners, with two blackish, slightly metallic, C-shaped markings touching in midline from above. Top of head dark brown with grey pimple-like peaks. Eyes turquoise. Thorax very large, dark brown with slight metallic green sheen and some patchy indistinct dull yellow stripes. Wings slightly smoky, front and underside of costal veins pale yellowish. Pterostigmas black and long, 4.1–4.5 mm). Abdomen is noticeably swollen at base, narrowing down greatly on segments 3 and 4, overall shiny black with dull yellow side spots and fine yellow line running along top of its length. Beginning of segment 3 with a white pruinescent ring, widest at sides and conspicuous in the field. Female stouter, abdomen less constricted, pterostigmas are long, 5 mm, yellowish spots on abdomen more extensive to form rings.

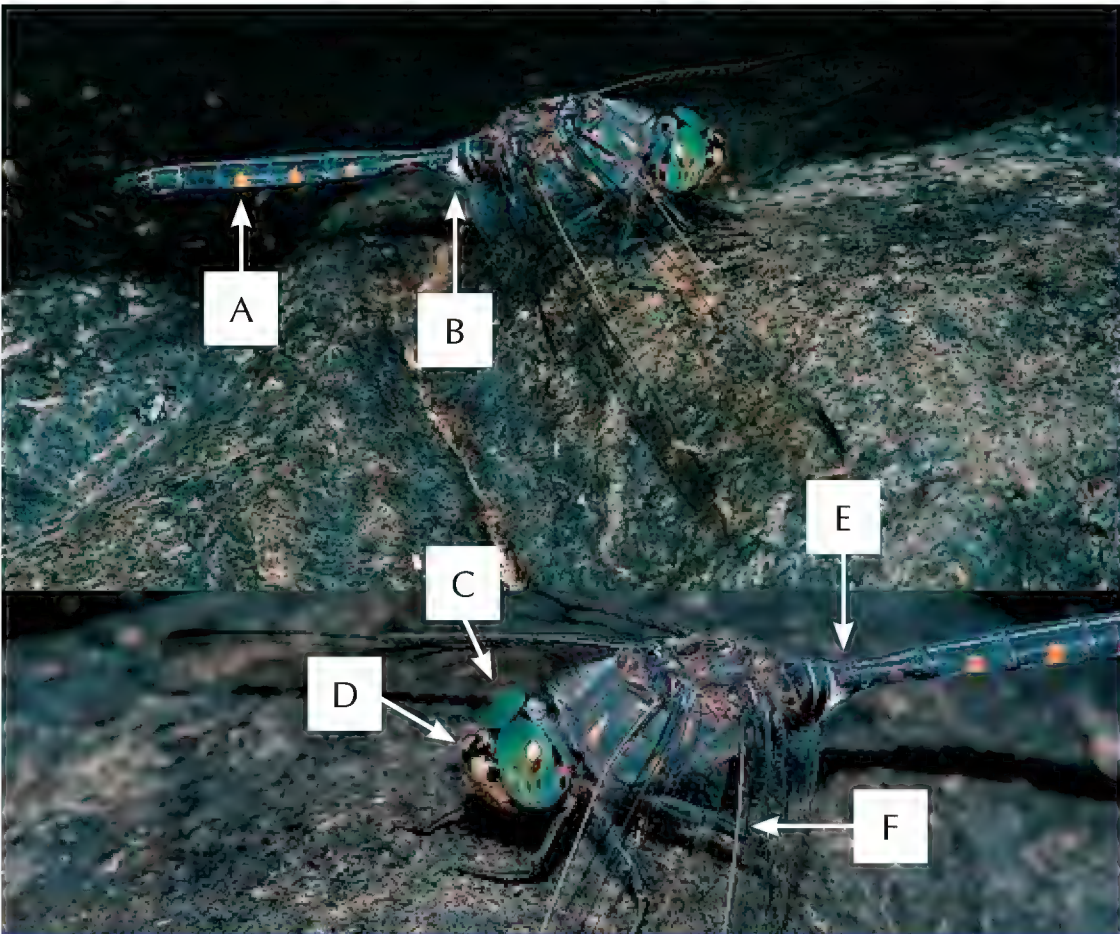
Field notes: The Southern Riverking is localised in northern KwaZulu-Natal up to 850 m elevation, and also occurs in the northern provinces from where it extends to West Africa and Sudan. It occurs along broad, shallow, rocky, swift and hot savanna rivers with bushy or open banks. It



Threat	DBI
LC	4



patrols swift rivers, regularly settling on bushes, sticks or on rocks in the water. Hunting swarms wheel around high up between trees at dusk. On the wing from December to April.



- Blackish with dull yellow spots
 - White pruinescent ring at base of abdomen
 - Usually perches on rocks midstream
- A. Dull yellow side spots
B. White pruinescent ring
C. Turquoise eyes
D. Metallic C-shaped markings
E. Narrow waist
F. Pale yellowish leading edge

Body length: 50–53 mm

Hindwing length: 38–39 mm





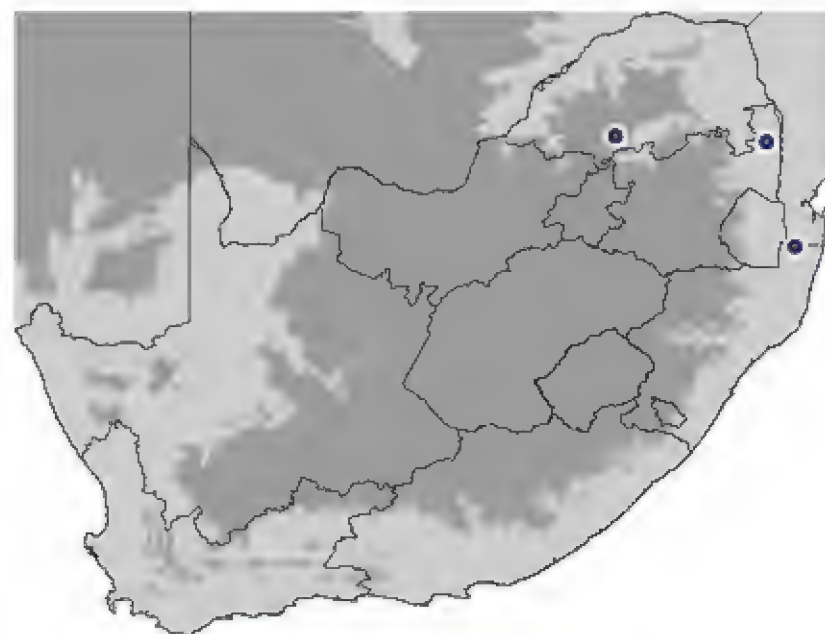
Bottletail

(Slender Bottletail)

Olpogastra lugubris Karsch, 1895

Appearance: The Bottletail is large, unusual and elegant, with an extremely swollen base to the abdomen, which then narrows down dramatically to a very slender and long abdomen. Face dark brown, dull yellow and brownish metallic bluish green. Labrum dark brown. Anteclypeus dull yellow. Postclypeus dull yellow with dark brown arch. Frons dark brown with bluish green dimpled shine, lower margin dull yellow. Top of head brown metallic bluish green with indistinct dull yellow spot in front. Eyes green and grey. Thorax very deep (9 mm) in side view, dark brown with slight metallic green shine and about 10 variously shaped, greenish yellow spots that look like broken lines, slightly pruinose below. Wings with black veins and large central amber suffusion, especially on hindwings. Pterostigmas dark brown and long, 5.5 mm. Abdomen with unusual shape, very deep at base, 5.5–6.0 mm in side view deep, at segment 3 constricts down to only 1.0–1.5 mm on segment 4, curved and widens slightly towards tip. Base of abdomen with large yellow stripes and spots, small yellow spots at base and sides of segments 5 to 7, longest on segment 7. Segments 8 to 10 black. Female almost identical, with more distinct amber wing markings.

Field notes: The Bottletail is highly localised in South Africa, having only been recorded oc-

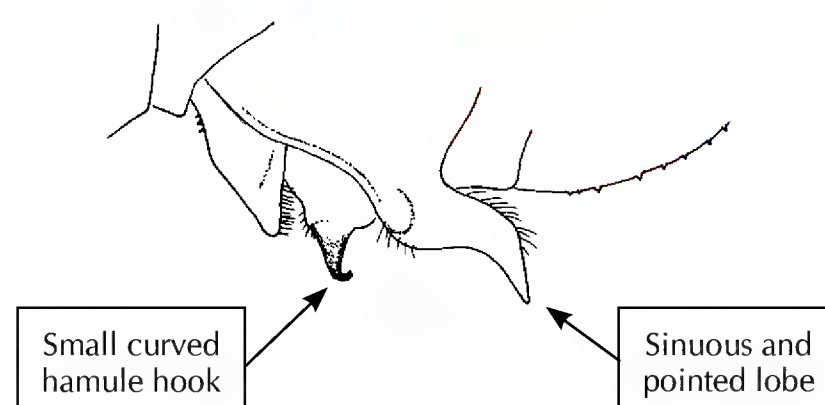


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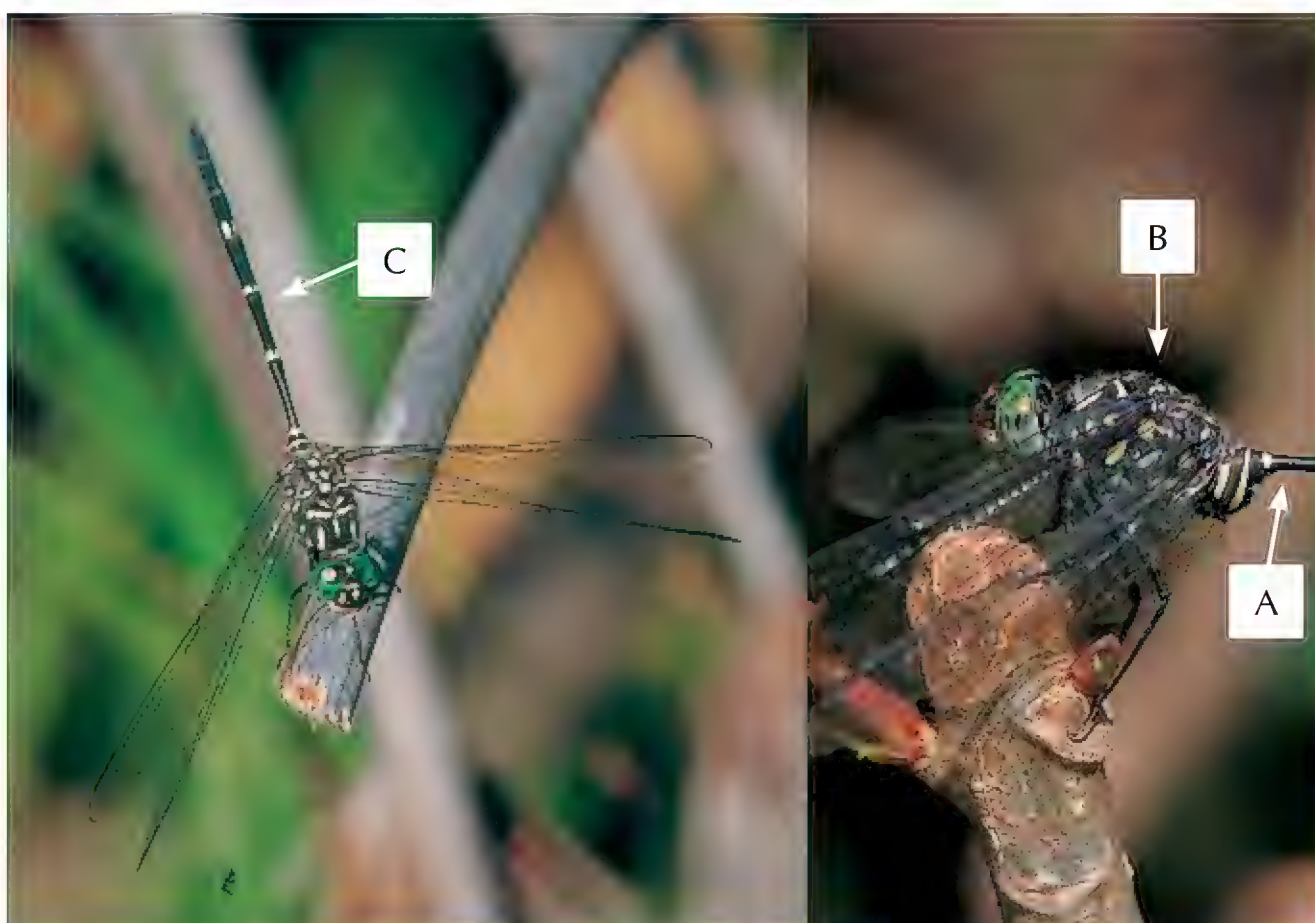
LC

DBI

4



casionally in KwaZulu-Natal and the northern provinces. Its range extends to West and East Africa. It perches on reeds and sticks over flowing water, especially where there are extensive reed beds. On the wing from December to April.



- All black and yellow
- Abdomen starts deep, then narrows down, becoming long and slender
- A. Extreme narrowing of abdomen
- B. Thorax very deep with yellow spots
- C. Slender abdomen, black with fine, yellow rings

Body length: 57–59 mm

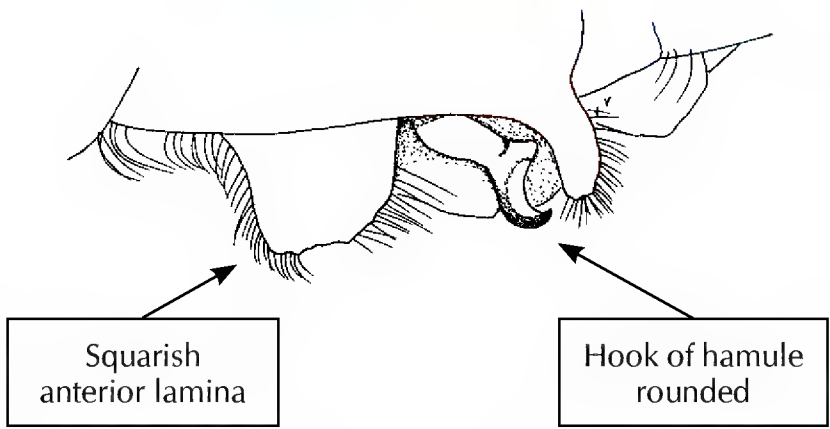
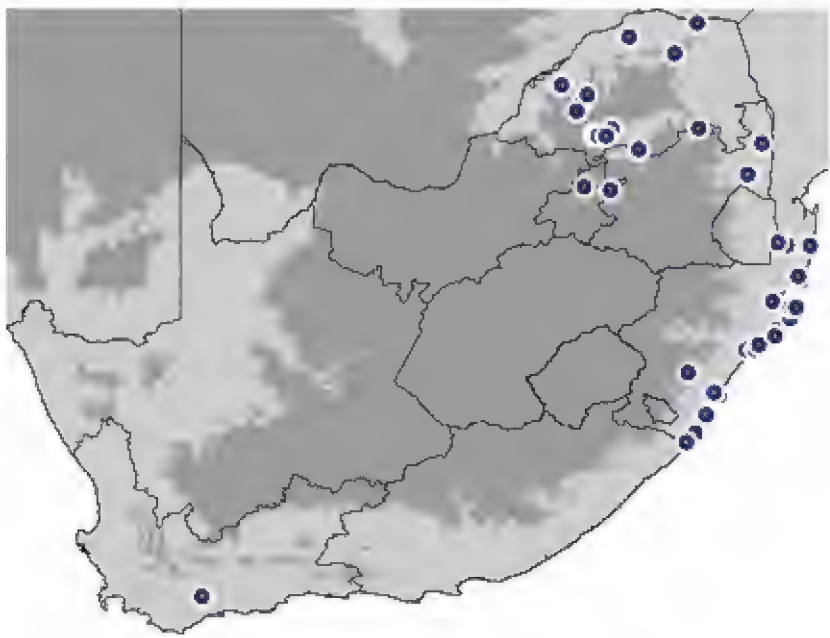
Hindwing length: 38–39 mm

Phantom Flutterer

Rhyothemis semihyalina (Desjardins, 1832)

Appearance: The Phantom Flutterer is fairly large to large, slender, with a black body and a large metallic black basal patch on the hindwings. Face brown in front, metallic above. Labrum blackish brown. Anteclypeus and postclypeus dark brown. Frons bright metallic dimpled bluish purple, lower margin dull yellow. Eyes dark brown. Thorax slightly metallic greenish black, interspersed with some faint yellow brown patches. Wings short and wide, especially hindwings, slightly smoky, hindwings with large black to metallic purple and metallic blue (when viewed from some angles) patch running across entire basal area, the patch with small brownish triangular window near front edge of hindwings. Pterostigmas dark reddish brown and short, 2 mm. Abdomen slender, short and black. Female slightly stouter, otherwise similar in all respects, including basal wing patch.

Field notes: The Phantom Flutterer is locally common in KwaZulu-Natal up to 1 000 m elevation, but usually near sea level, and extends throughout the northern provinces with a single Western Cape record. It extends to North Africa and the western Indian Ocean islands. It frequents shallow, marshy pools with an abundance of lilies and fringed with tall grasses and reeds. It has a distinctly fluttering flight and ap-



pears almost butterfly-like, frequently landing on lilies or reeds within the pool. It can sometimes be seen flying around tree tops. On the wing from November to May.



- Fairly large to large, with an all black body
- Hindwings each with a large blackish metallic purple/blue patch
- Fluttering flight
- A. Large, dark metallic patch
- B. Black body
- C. Pterostigmas short
- D. Eyes dark brown

Body length: 50–53 mm

Hindwing length: 38–39 mm



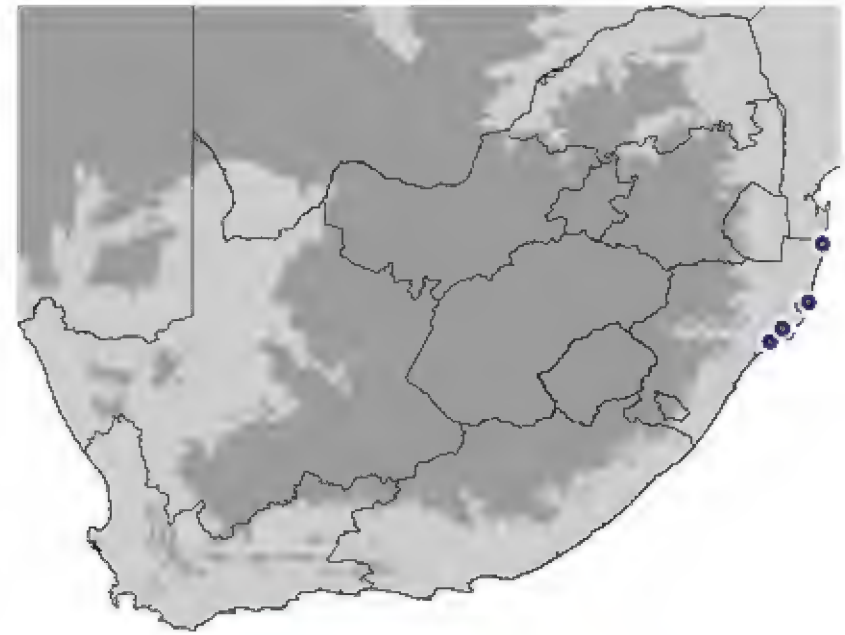


Smoky Duskdarter

Zyxomma atlanticum Selys, 1889

Appearance: The Smoky Duskdarter is medium sized, slender, all dark brown with smoky wings. Face yellow brown and dull metallic black. Labrum, anteclypeus and postclypeus light yellow brown. Top of head, front and top of frons dull metallic black, lower margin and sides of frons yellow brown. Eyes huge, dark greyish green with dark stripes. Thorax dark brown, slightly lighter in places especially under each of the wing bases. Wings distinctly smoky, although clearer near base. Pterostigmas dark reddish brown, 3.5 mm long. Abdomen above and at sides blackish brown, light brown below, first part of abdomen wide with narrow waist on segment 3. Appendages light brown at base, black at ends. Female similar to male.

Field notes: The Smoky Duskdarter is highly localised along coastal northern KwaZulu-Natal. Its range extends to West and East Africa and it lives in coastal swamp forest. On overcast afternoons, and particularly at dusk, it flies low and swiftly up and down over open stretches of still water under the forest canopy. During the day, it retreats to the darkest recesses of bushes and ferns within the swamp forest. On the wing from December to May.

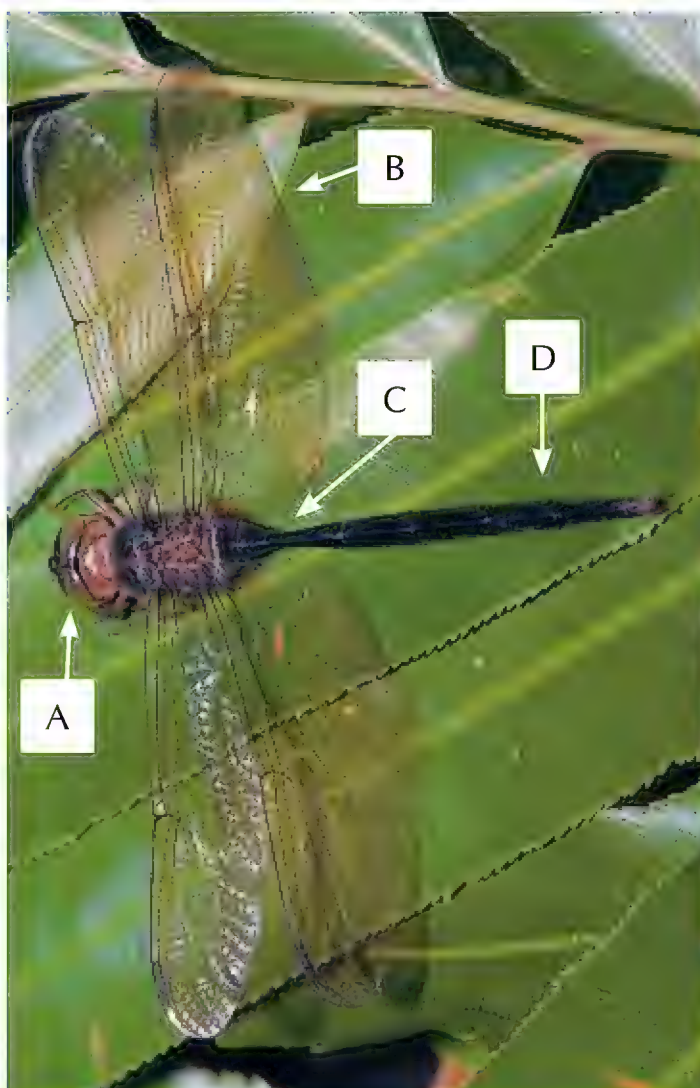
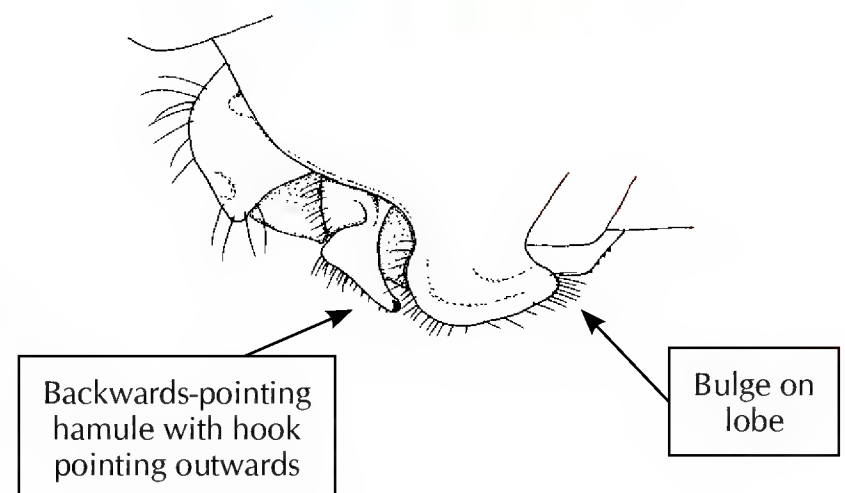


Threat

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DBI

6



- Slender, all dark brown
- Distinct waist
- Smoky wings

- A. Eyes greyish green with dark stripes
- B. Smoky wings
- C. Distinct waist
- D. Narrow dark brown abdomen
- E. Unmarked thorax

Daytime resting position deep inside dark vegetation

Body length: 42.0–43.5 mm

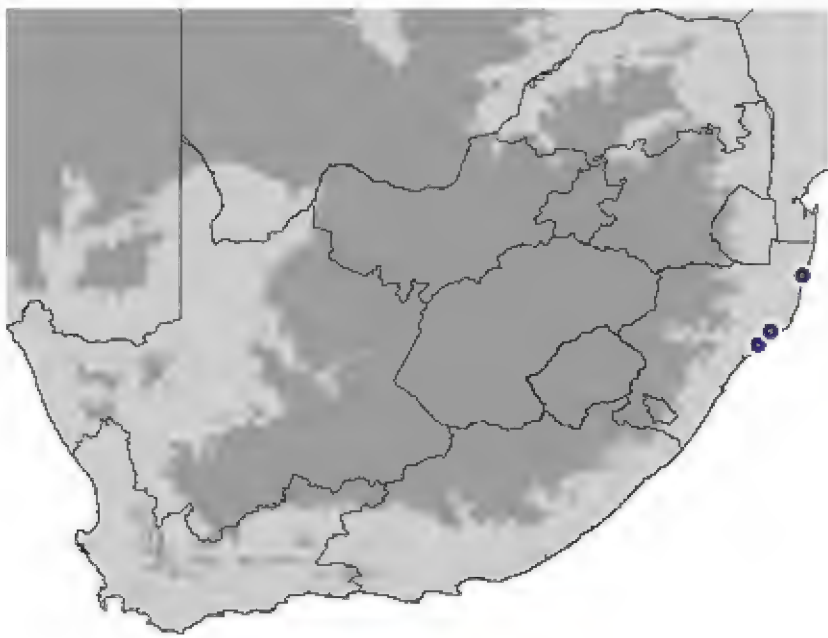
Hindwing length: 31.5–32.0 mm

Banded Duskdarter

Parazyxomma flavicans (Martin, 1908)

Appearance: The Banded Duskdarter is medium sized, blackish brown, with smudged dark brown wing bands. Face mostly light brown in front, dark brown above. Labrum dark brown with light margin, especially centrally. Anteclypeus and postclypeus light greenish to yellowish brown, grading into dark shiny brown. Frons and top of head slightly metallic and dimpled. Eyes greenish with distinct dark brown stripes and mottles above, light grey with brown patches in front. Thorax a mosaic of indistinct dark greenish brown patches separated by blackish lines. Wings clear with black veins, distinctive black bands on all four wings just outside nodus, bands not quite reaching hindwing margin, distinctive light patch present under base of forewing. Pterostigmas (3.2 mm) deep yellowish brown on inside, dark brown on outside. Abdomen smooth, shiny dark blackish brown above, light brown below. Female duller, without wing patches, eyes with same distinct striping.

Field notes: The Banded Duskdarter is highly localised along coastal northern KwaZulu-Natal. Its range extends to West and East Africa and its habitat is coastal swamp forest adjacent to large rivers. It often perches high up on twigs and branches under the canopy and usually in full shade, most often seen in *Barringtonia* forests. On the wing from December to March.

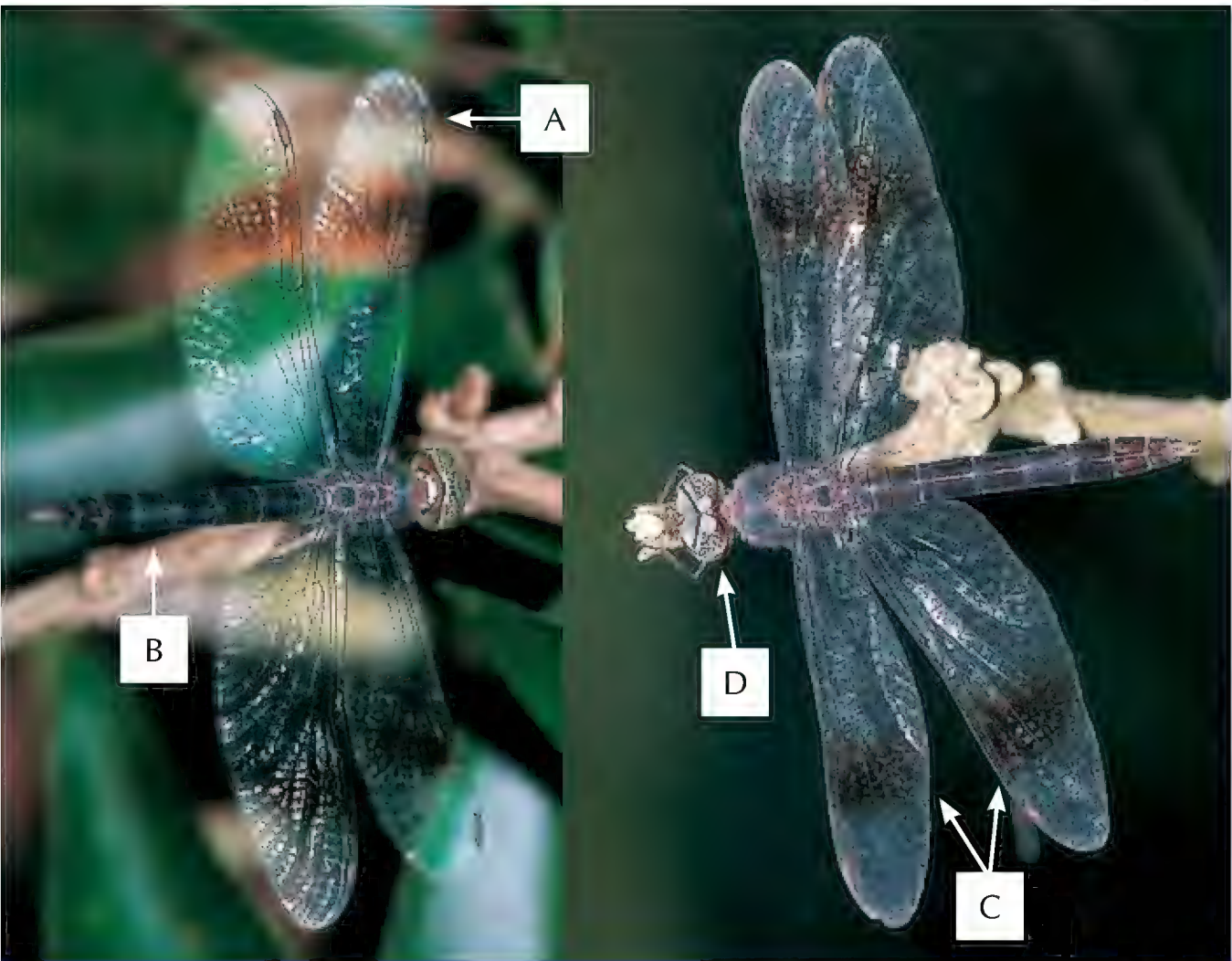
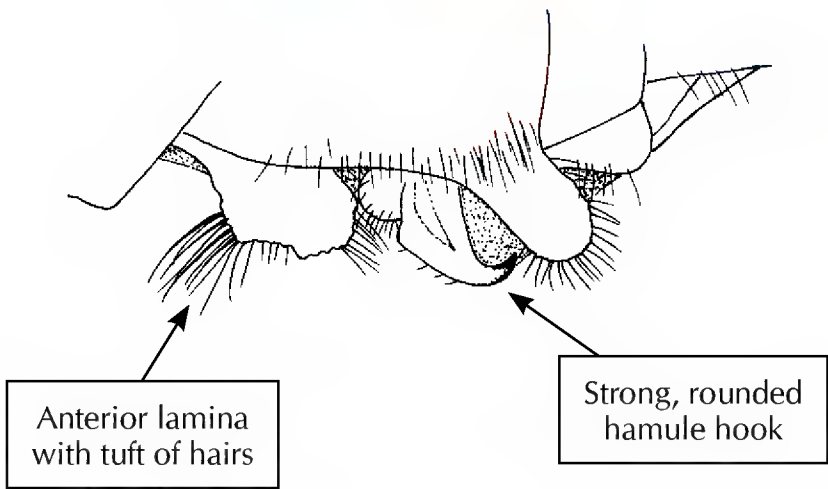


Threat

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DBI

5



- All blackish brown
 - Band-like smudges on all wings
 - Eyes greenish but strongly mottled and striped
 - Warm coastal swamp forest
- A. Pterostigmas with light centres
- B. All dark brown body
- C. Smudgy, banded wings
- D. Mottled and striped eyes

Body length: 38–39 mm

Hindwing length: 30–31 mm



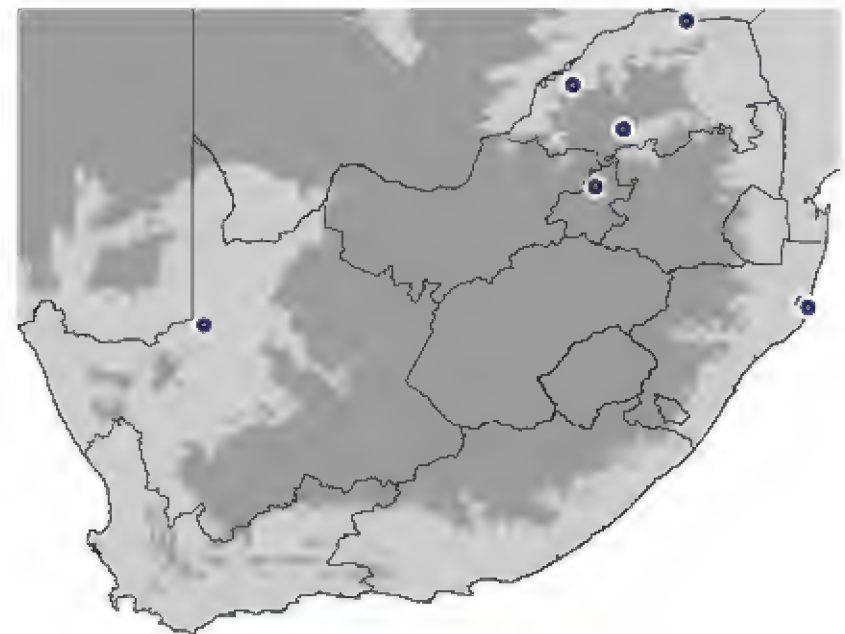


Twister

Tholymis tillarga (Fabricius, 1798)

Appearance: The Twister is fairly large and light red with dark brown and white smudges in the centre of the hindwings. Face, including upper frons and top of head, orange to reddish brown. Eyes orange red to reddish brown. Thorax with almost no markings, light red to slightly reddish brown with light area between wing bases. Hindwings with dark brown patch just inside nodus in front half, with white patch outside of it and diffuse amber area inside it. Forewings with diffuse amber area at bases of wings. Pterostigmas (3 mm) light yellowish brown. Abdomen tapered, light red. Appendages long, red, black at tips. Female similar in body shape, browner, with only a hint of a dark splash on hindwings.

Field notes: The Twister is only known from a few localised records in northern KwaZulu-Natal and the northern provinces with a single record from the Northern Cape. The Twister has a wide distribution across tropical Africa, many Indian Ocean islands, Asia and Australia. It occurs at pools and pans with reedy and bushy margins. It hawks low and fast over the water surface, often turning abruptly. It flies mostly at dusk, but will also take to the wing on sultry afternoons. On the wing from December to April.

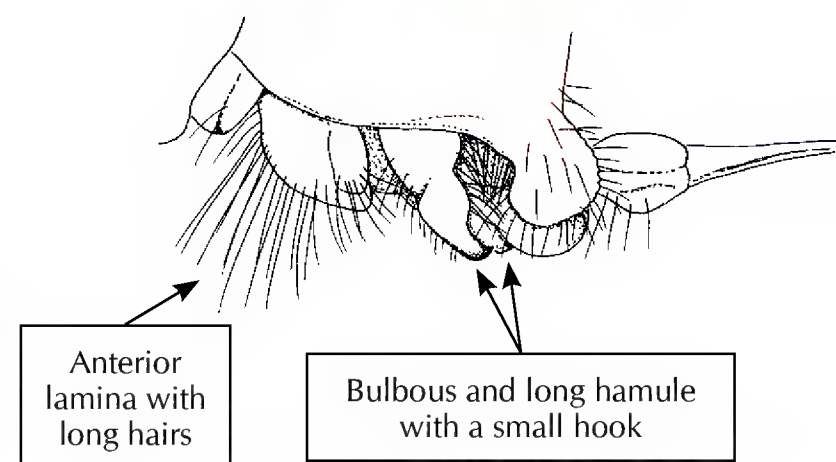


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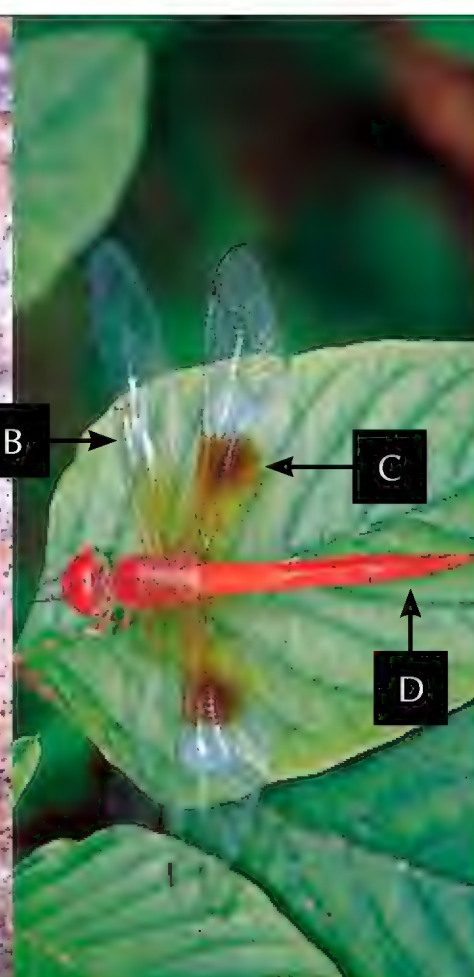
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3



Body length: 42.0–43.5 mm



- All light red
- Hindwings with dark brown patch bordered by white patch
- A. Body light red
- B. White patch
- C. Dark brown patch
- D. Abdomen tapered

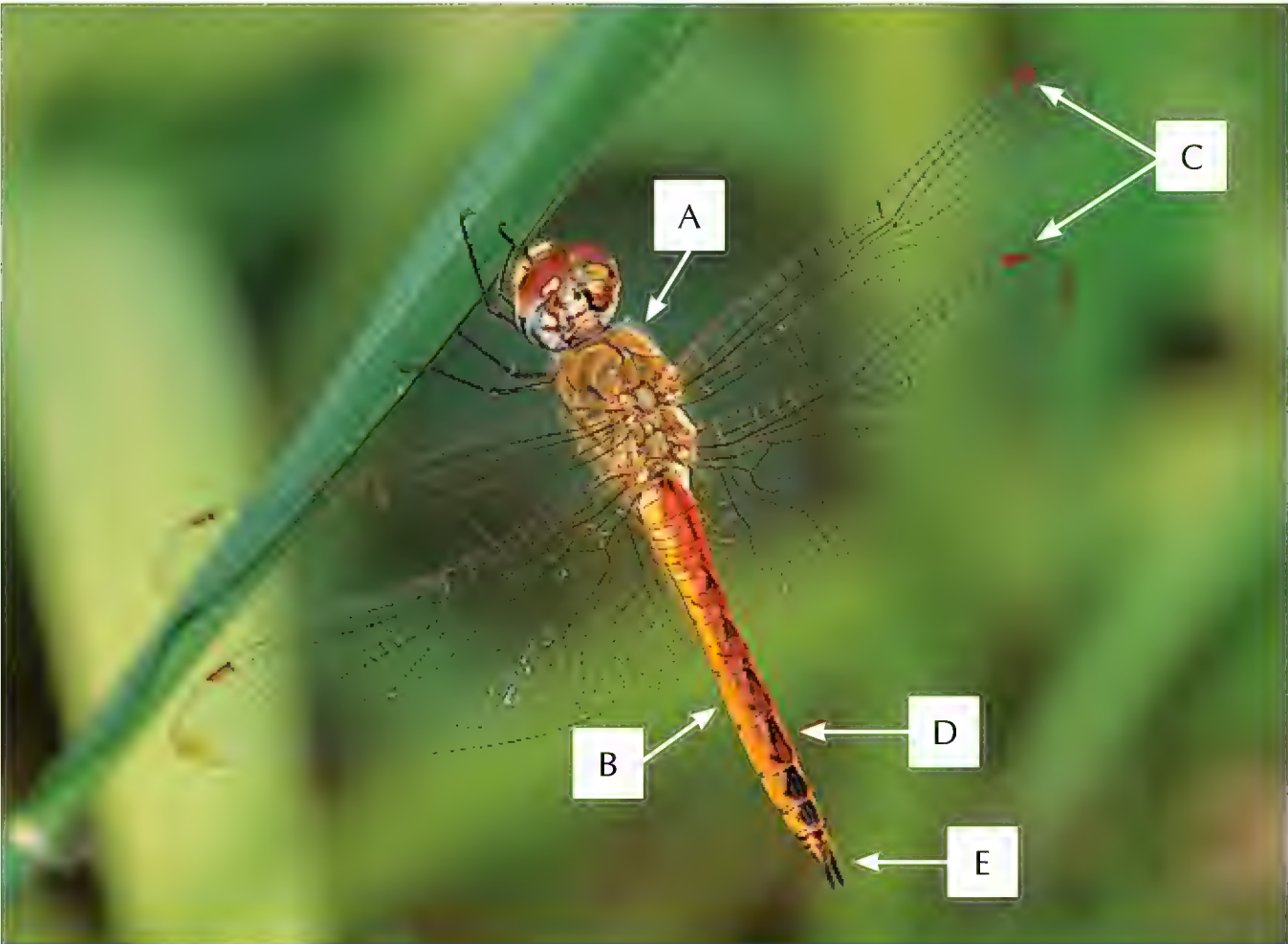
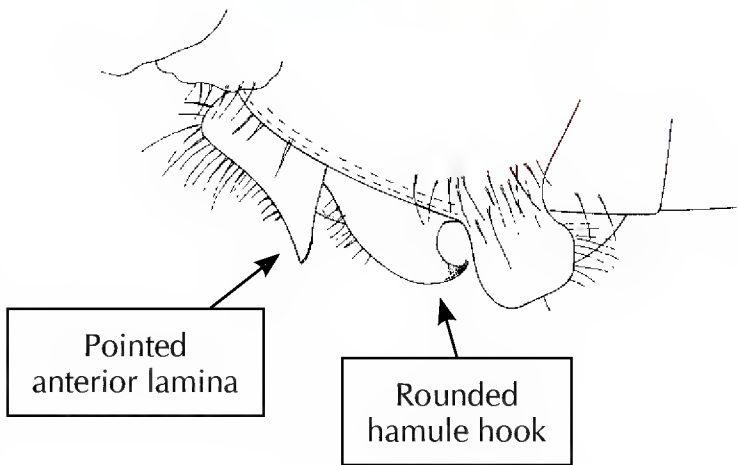
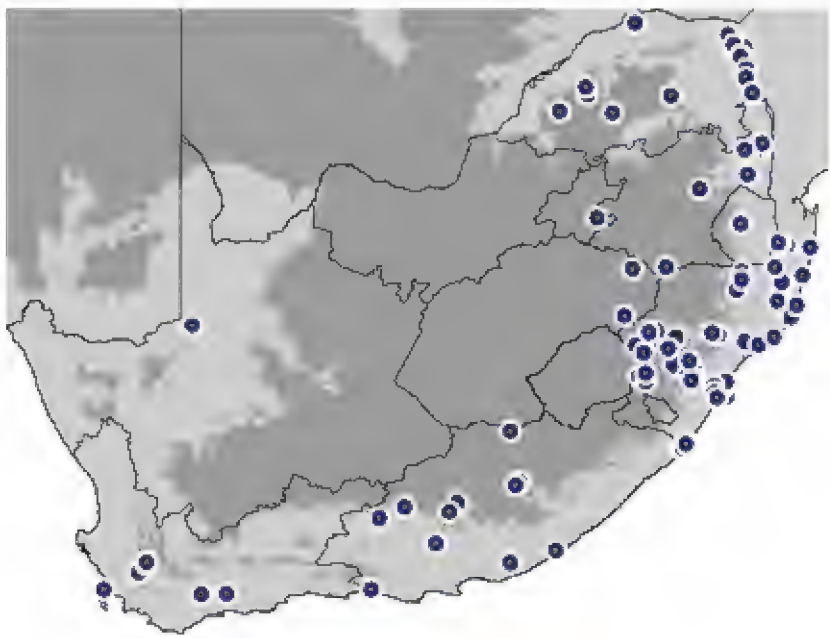
Hindwing length: 31.5–32.0 mm

Pantala or Wandering Glider

Pantala flavescens (Fabricius, 1798)

Appearance: The Pantala is fairly large and light orange with a tapered abdomen. Face and top of head light yellow and light brown. Eyes reddish brown above, mottled light grey, dark grey and pale yellow below. Thorax dull greenish orange above, greyish at sides with a few sparse dark brown markings. Wings long, pointed and clear, sometimes with small diffuse amber areas especially at tips. Pterostigmas pale brown, 2.8–2.9 mm in forewings, 2.2 mm in hindwings. Abdomen with pointed fuselage-shape, dull orange with some irregular dark brown patches that increase in size and intensity towards end of abdomen, becomes reddish in some older individuals. Appendages long, dark brown. Female similar, but browner and stouter.

Field notes: The Pantala is a wanderer and a migrant and occurs throughout South Africa, it may even be seen above 2 000 m elevation. It occurs throughout the tropics and subtropics where it breeds in warm, shallow, grassy temporary pools, although it is usually on the wing in bushy areas, especially bushy savanna, where it often flies in groups. It wheels and glides, sometimes singly but usually in groups, which may include other species such as the Gliders. It flies in open areas between bushes and trees, and also along roadsides and in gardens. On the wing from November to May.



- All light orange
 - Mostly seen gliding
 - Wings clear
- A. Greenish orange thorax
- B. Dull orange abdomen
- C. Pterostigmas longer in forewing compared to hindwing
- D. Dark spots
- E. Long appendages

Body length: 47–50 mm

Hindwing length: 38.5–41.0 mm



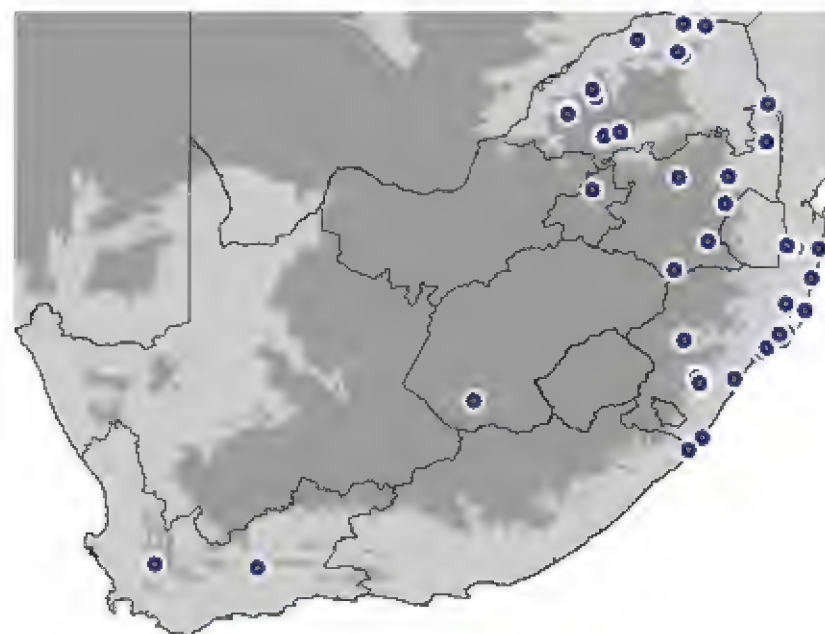


Keyhole Glider

Tramea basilaris (Palisot de Beauvois, 1817)

Appearance: The Keyhole Glider is fairly large, light red and brown, with a black abdominal tip and jagged dark red basal hindwing patches. Face brown. Labrum dark brown. Anteclypeus and postclypeus light brown. Frons reddish brown above, lower margins and sides light brown. Top of head grey with reddish brown peak. Eyes deep reddish brown above, light grey with dark grey mottles below. Thorax dull orange brown above, dark brownish grey with dark brown areas along sides. Wings long, pointed. Hindwings with irregular, jagged, dark red patch that is almost broken in middle, surrounded by amber staining, hind region of this patch shaped like a keyhole. Forewings clear. Pterostigmas yellowish to reddish brown, 2.5 mm in forewings, 2 mm in hindwings. Membranule white. Abdomen pointed and fuselage shaped. Segment 1 dark brown, segments 2 to 10 light red. Segment 8 with triangular black patch above, segments 9 and 10 black above. Segments 8 to 10 with fine cream lines along hind margins. Superior appendages long, dark brown with light base. Female similar in body patterning but greyish brown instead of reddish, wing patches similar but brown rather than dark red and not quite as extensive.

Field notes: The Keyhole Glider is most common throughout KwaZulu-Natal and the northern provinces, with occasional records from elsewhere in the country. It extends throughout Africa to Asia. It breeds in shallow pools with

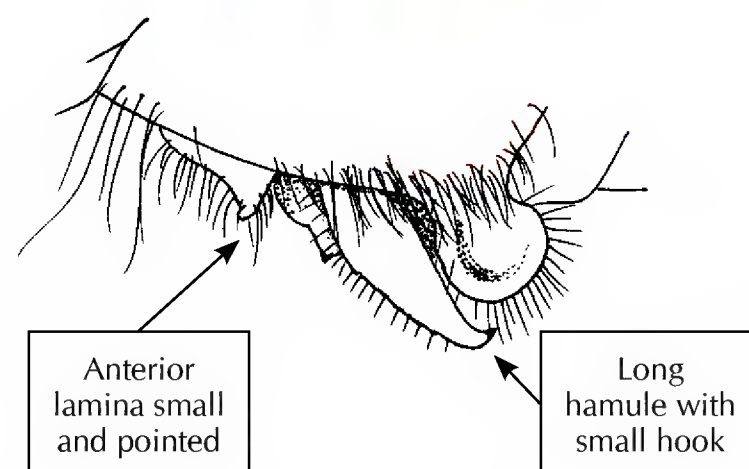


Threat

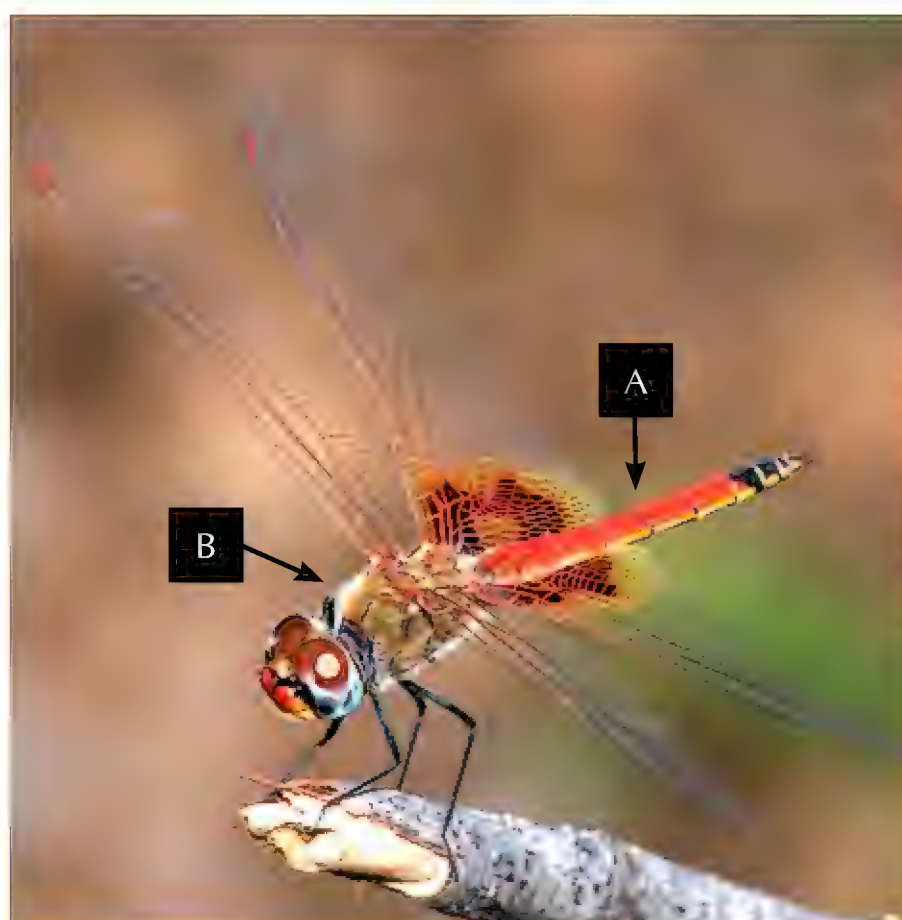
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DBI

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an abundance of reeds. Adults are usually away from water and often in bushy savanna. It perches on top of low bushes or glides back and forth in the open among bushes and trees, usually singly but sometimes in small groups. On the wing from December to May.



Body length: 45–49 mm



- All reddish
- Broken dark red patch on hindwings

- A. Slender red abdomen
- B. Brownish thorax
- C. Irregular, jagged, dark red patch
- D. Black tip

Hindwing length: 38–39 mm

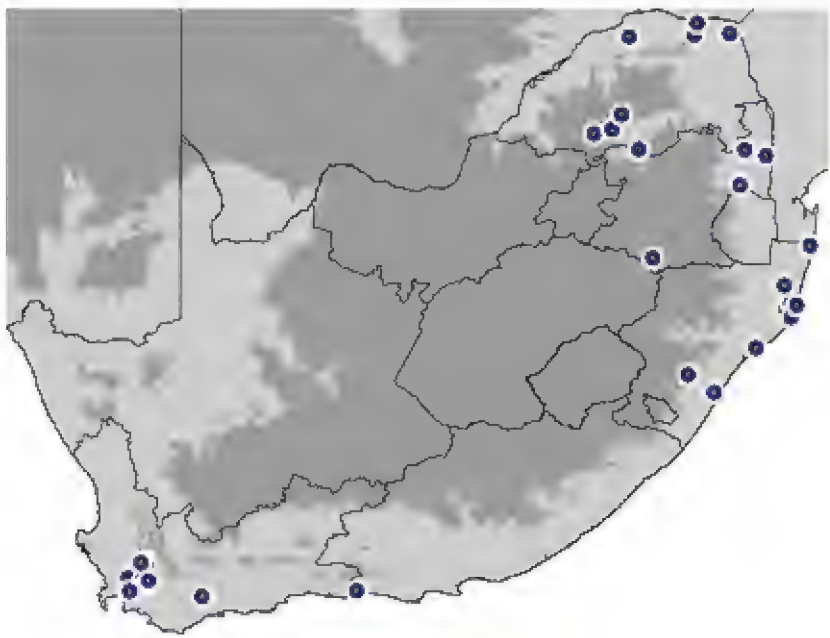
Ferruginous Glider

(Voyaging Glider)

Tramea limbata (Desjardins, 1832)

Appearance: The Ferruginous Glider is fairly large with a fuselage-shaped abdomen, deep red and brown with a black abdominal tip, and with a large oval-shaped dark red basal hind-wing patch. Face all reddish brown but darker in places in front. Frons deep reddish brown above with metallic purple sheen. Top of head dark brown. Eyes dark red above, grey below with dark grey mottles. Thorax all brown with virtually no markings. Wings long, pointed with brown veins. Hindwings with smooth-edged, ovalish, dark red patch that is jagged only near front of wing. Forewings clear. Pterostigmas yellow brown, 2.5 mm in forewings, 2.2 mm in hindwings. Membranule light grey. Abdomen pointed and fuselage-shaped. Segment 1 dark brown, segments 2 to 10 deep red. Segments 2 to 7 sometimes with fine dark rings on hind margins. Segment 8 with triangular black patch above, segments 9 and 10 all black above. Appendages long and blackish, light brown at base. Female similar in body patterning, abdomen duller and stouter, wing patches similar.

Field notes: The Ferruginous Glider has been recorded extensively in South Africa, but tends to be most common near the coast in KwaZulu-Natal. It has a tropical and subtropical distribution across Africa and the Western Indian Ocean islands. It breeds in shallow pools and pans, but tends to fly away from the water in humid bushy country. It glides singly or in small groups

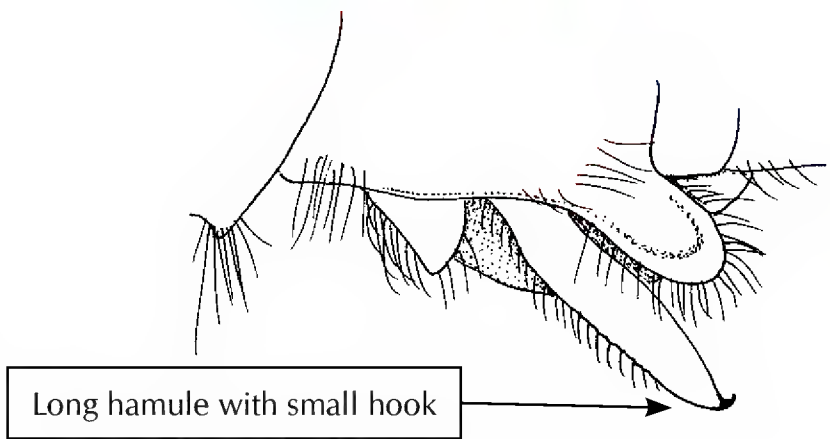


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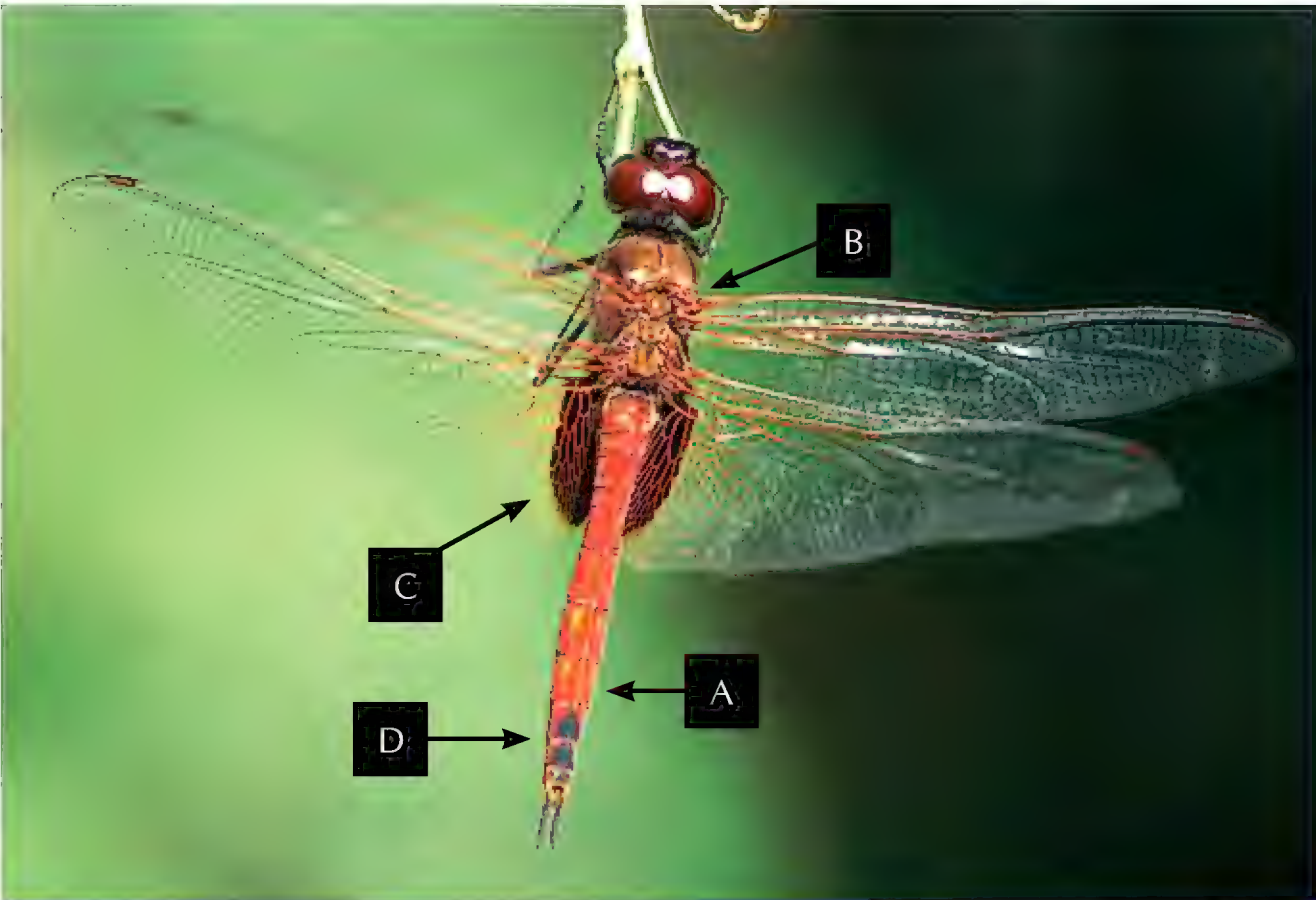
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between bushes and trees, usually in the region of its breeding pools. On cloudy days and when conditions are hot it perches on the top of bushes. It is a master migrant and readily travels across the country and among islands in the Indian Ocean. On the wing from December to May, occasional winter individuals may be seen.



- All reddish
- Smooth-edged dark patch on hindwings
- A. Slender red abdomen
- B. Brown thorax
- C. Smooth-edged, curved dark red patch
- D. Black spots on tip

Body length: 40–42 mm

Hindwing length: 33.5–35.0 m



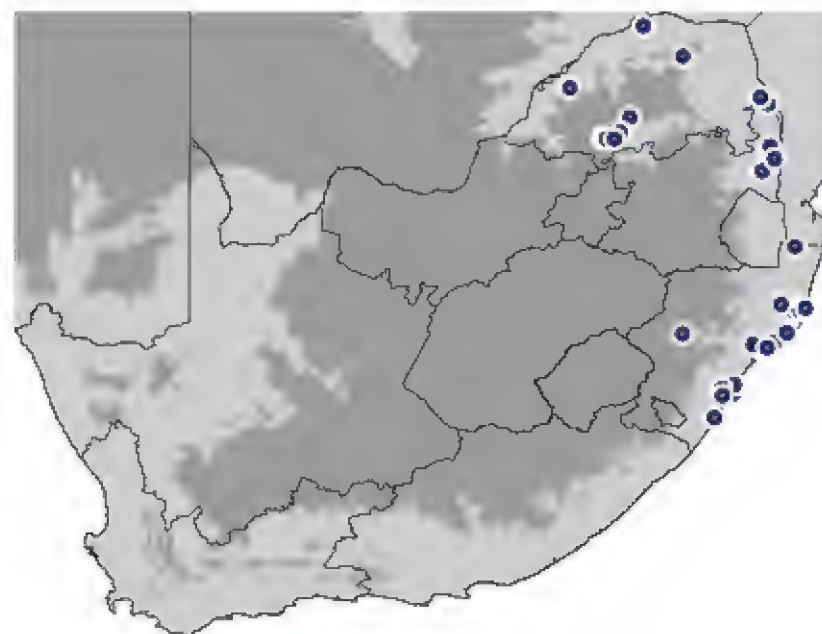


Red Basker

Urothemis assignata (Sélys, 1872)

Appearance: The Red Basker is medium sized, stout and bright red, with large dark red hind-wing splashes. Face, including top of frons and top of head, deep red. Eyes deep red above, light grey with dark grey mottles below. Thorax deep red with small darker patches. Wings with red veins. Hindwings with large dark red angular basal splashes with fine amber halos. Forewings with small traces of basal amber. Pterostigmas yellow brown with fine black anterior border, 4 mm. Abdomen stout, bright red. Segments 5 to 9 above with black, median ladder-like stripe of uneven width, widest on segments 8 and 9. Appendages of moderate length, red. Female stout like male, all greyish brown and dark brown with abdomen heavily marked, hindwing patch similar, but not so extensive.

Field notes: The Red Basker occurs throughout lowland KwaZulu-Natal up to 250 m elevation and throughout the northern provinces. It occurs throughout tropical and subtropical Africa. It frequents pools and marshes with an abundance of reeds and lilies where it is conspicuous as it perches on reed tips at the water's edge. Although it has a strong flight, it soon returns to its perch. On the wing from November to May.

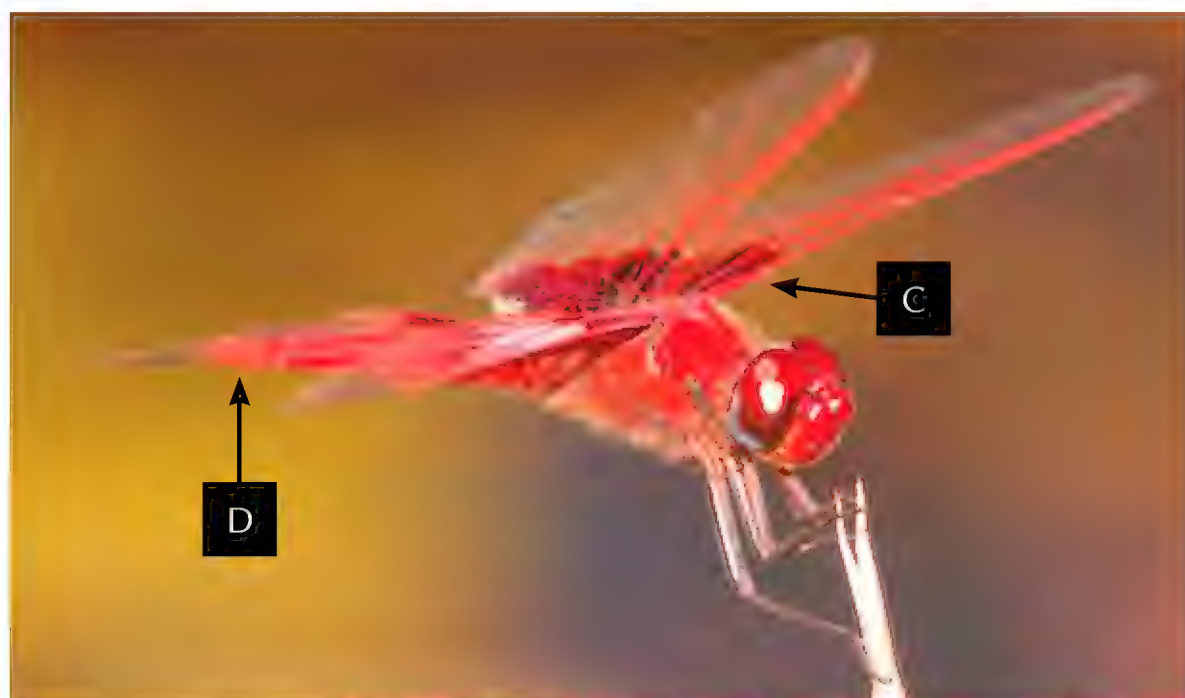
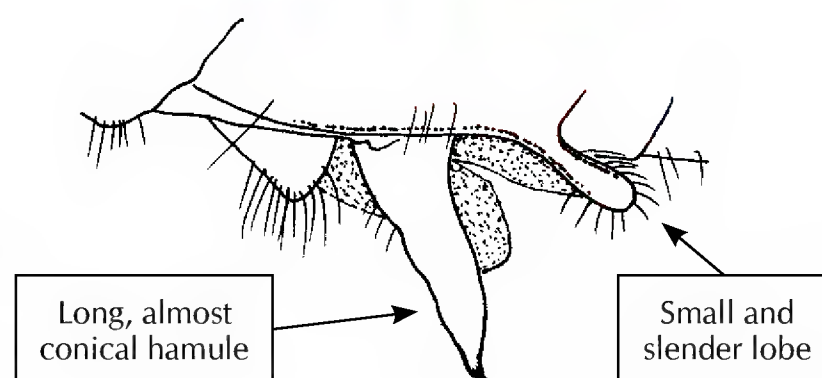


Threat

LC

DBI

3



- All bright red
- Large, roundish dark red patch on hindwings
- Stout abdomen with black ladder
- Proportionately long wings to body length
- Long, yellow brown pterostigmas

- A. Black ladder-like stripe
- B. Roundish dark red patch
- C. Forewings with traces of basal amber
- D. Stout, bright red abdomen

Body length: 37–41 mm

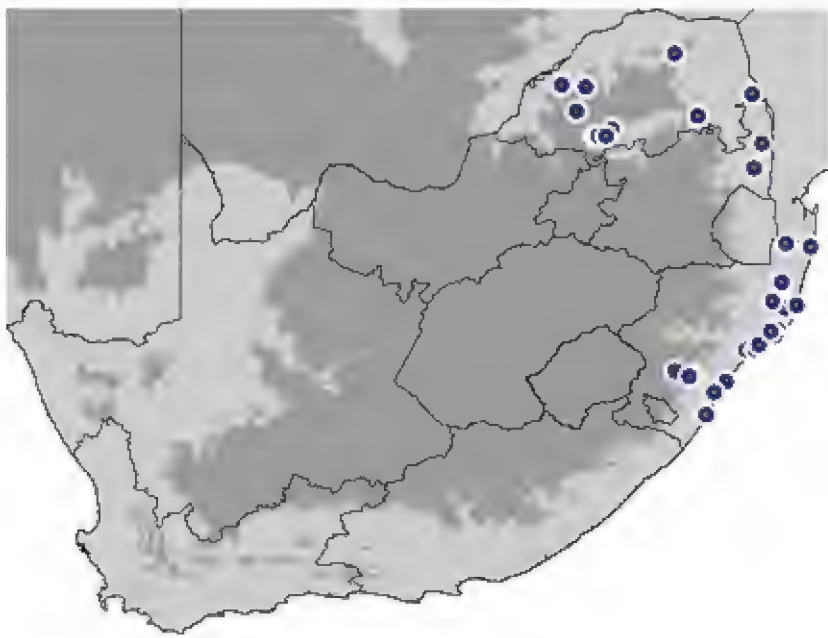
Hindwing length: 34–35 mm

Blue Basker

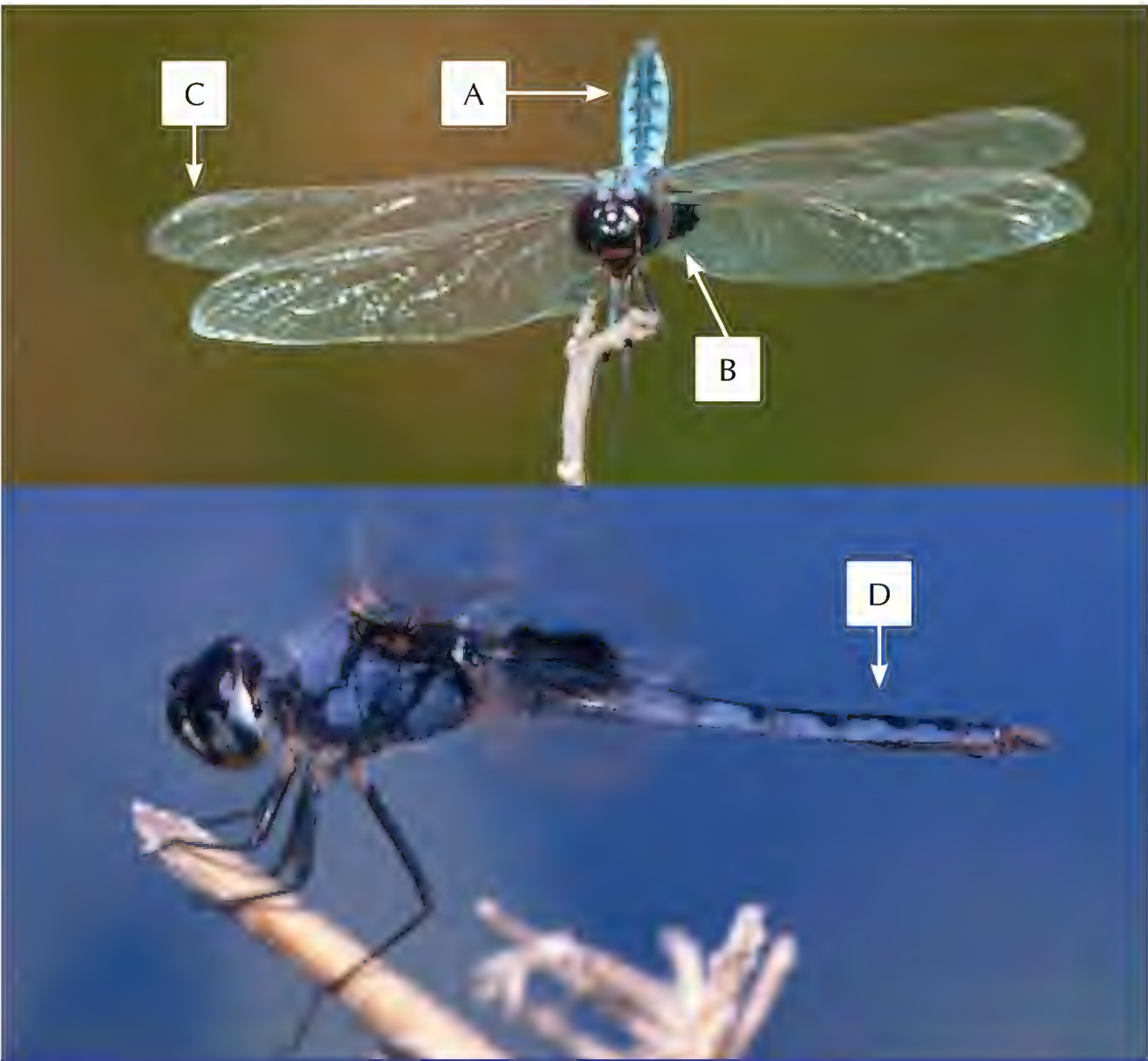
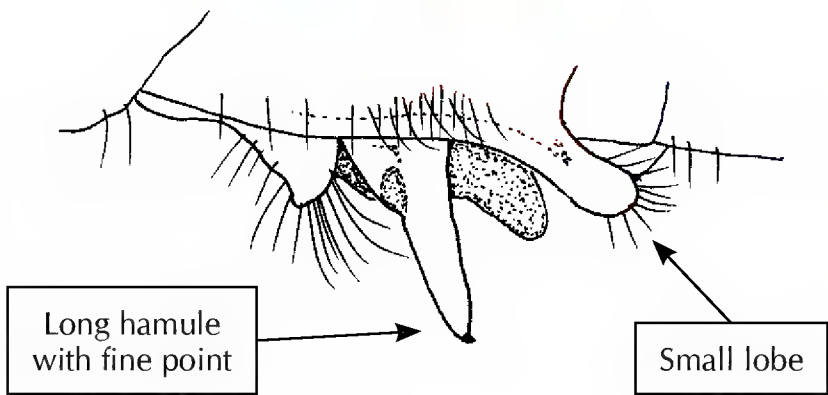
Urothemis edwardsii (Sélys, 1849)

Appearance: The Blue Basker is medium sized, stout, dark blue and black with blackish hindwing patches. Face shiny black above and on top. Side of postclypeus and frons with light grey patch. Eyes black, grey on lower margin. Thorax deep blue with diffuse black markings especially along top. Wings clear. Hindwings with large blackish purple basal patch with fine amber halo. Forewings with minute traces of basal amber. Veins dark brown. Pterostigmas 3.7–3.8 mm, buff with fine blackish front margin. Abdomen deep blue with distinctive black ladder running all the way along top. Appendages dark brown. Female similar in build, light brown with dark brown markings instead of blue, hindwing patch less intense and more irregular in shape with large amber halo, wingtips with some amber.

Field notes: The Blue Basker occurs along coastal KwaZulu-Natal up to 800 m elevation and across the northern provinces. Its range extends to North Africa, and Mayotte Island. It occurs around reedy pools and marshes and is usually seen perching on reed tips at the edge of the water or on twigs on the bank, although it is sometimes seen perching on bushes on grassland away from the water. On the wing from December to May.



Threat	DBI
LC	2



- All dark blue
 - Blackish purple patch on hindwings
 - Black ladder along abdomen
- A. All dark blue body
B. Blackish purple patch
C. Pale pterostigmas
D. Black ladder

Body length: 40–42 mm

Hindwing length: 33.5–35.0 m



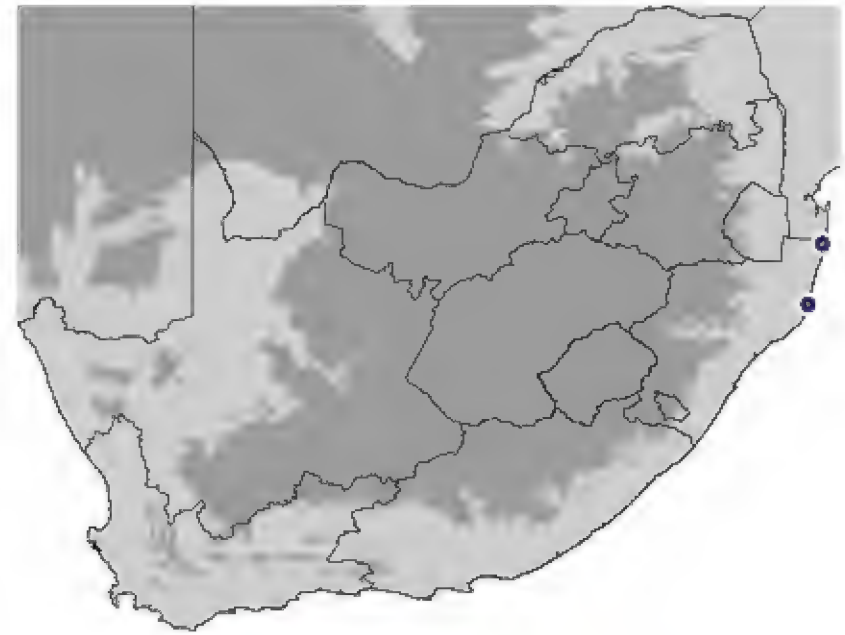


St Lucia Basker

Urothemis luciana Balinsky, 1961

Appearance: The St Lucia Basker is medium sized, robust and deep red, with a large and jagged reddish brown hindwing patch. Face and top of head deep brownish red. Eyes deep red, almost blackish. Thorax deep red with no distinctive markings. Wings clear with red veins. Hindwing with large basal, deeply notched, deep red and reddish brown splash with deep amber halo. Forewing with flame-like, dark brown and amber streaks. Pterostigmas 4.2 mm, buff between thick blackish brown veins. Abdomen bright deep red, segment 1 blackish above, segments 8 and 9 with blackish smudge running along their tops. Appendages red. Female similar, including wing markings, but orange and brown rather than red.

Field notes: The St Lucia Basker is rare and only known from coastal northern KwaZulu-Natal. It has also been recorded from southern Mozambique. It occurs in open, humid, coastal forest and bush. It is a powerful flyer as it wheels above bushes and between trees and only settles on the tops of bushes on cool and overcast days. On the wing from December to April.

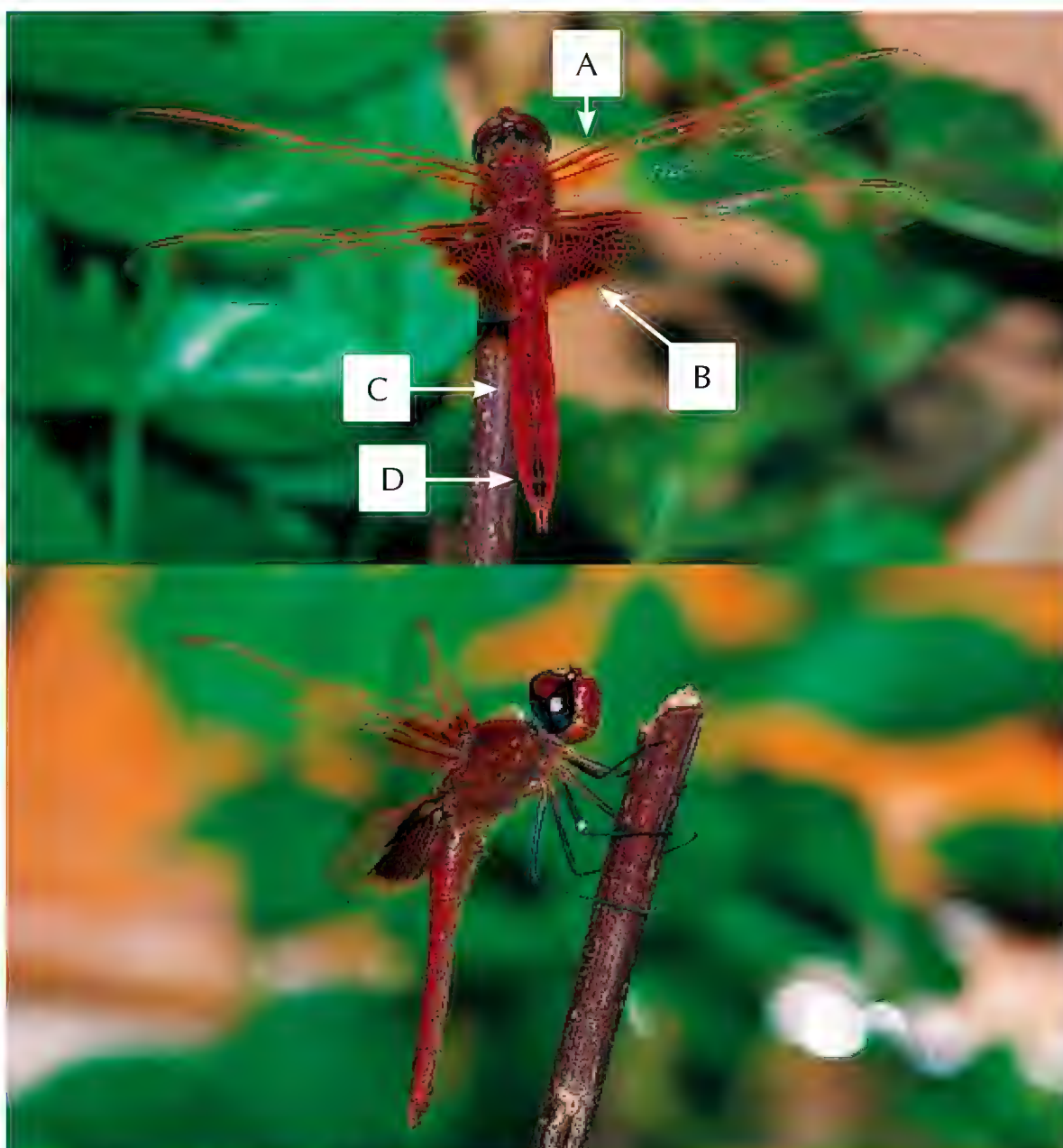
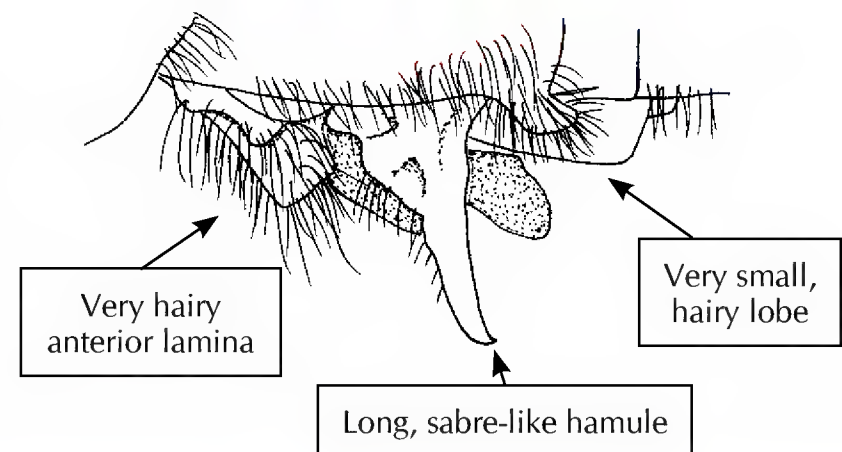


Threat

LC

DBI

5



- All deep red
- Robust
- Jagged, reddish brown hindwing patch
- Forewing with amber streaks

- A. Amber streaks
- B. Dark red, jagged hindwing patch
- C. Bright, deep red, robust abdomen
- D. Diffuse black marks

Body length: 44.0–46.5 mm

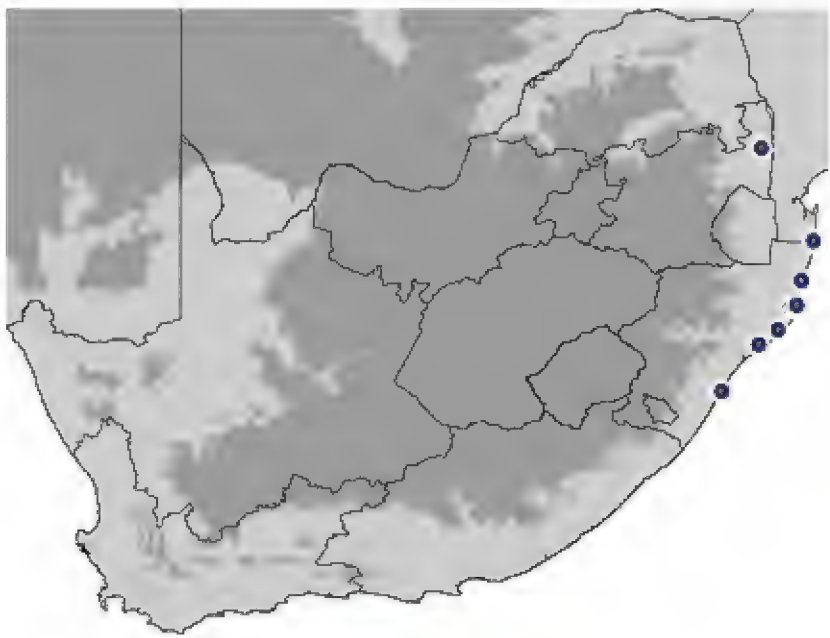
Hindwing length: 38–39 mm

Pygmy Basker

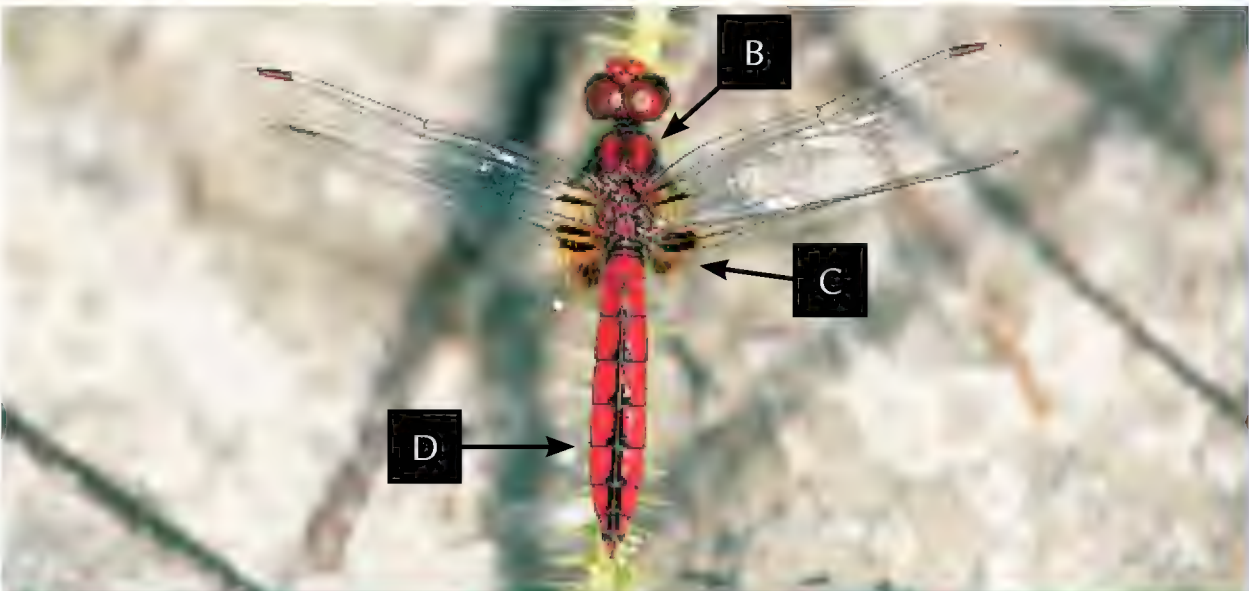
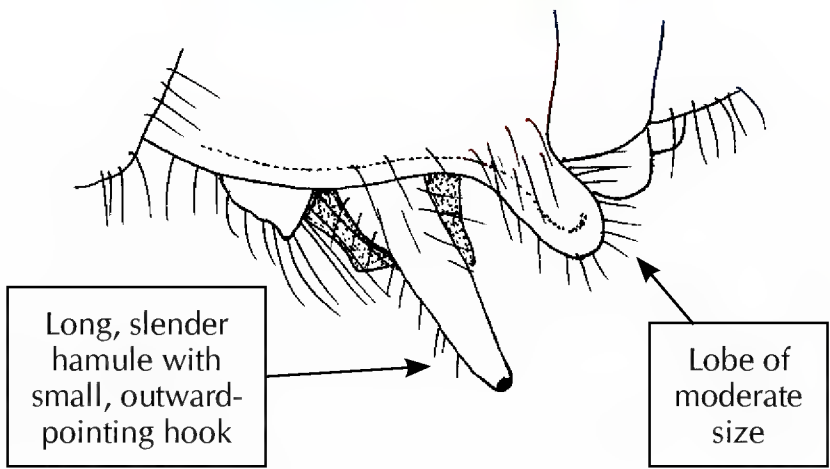
Aethriamanta rezia Kirby, 1889

Appearance: The Pygmy Basker is very small to small, and bright red with a black ladder along the abdomen, and has basal brown wing flares. Face and top of head light red. Eyes mottled grey, blackish and brown with red cap. Thorax deep red with black shoulder stripes and irregular black narrow side stripes. Wings all with dark brown basal flares, hindwings with additional small patch just behind flares, flares surrounded by amber halo. Pterostigmas 2 mm, reddish brown, almost red in life, between thick blackish veins. Abdomen wide, bright red with regular black ladder running along entire top. Segment 1 blackish. Superior appendages red. Female light orange with dark brown markings, including ladder along abdomen, bases of all wings with amber patches with indistinct outlines, only a hint of dark flares.

Field notes: The Pygmy Basker only occurs in northern KwaZulu-Natal near to the coast but it has also been recorded in the south of the Kruger National Park. Its range extends to West and East Africa, as well as Madagascar. It commonly occurs in dune pools, with many lilies and an abundance of reeds, sometimes also seen in marshes. It is an alert and conspicuous species that perches on the tips of twigs or reeds at the water's edge. On the wing from December to May.



Threat	DBI
LC	4



- Very small, bright red
 - Wings with dark brown flares
 - Black ladder on abdomen
- A. Bright red
B. Black shoulder stripes
C. Dark brown flares
D. Black ladder

Body length: 27–29 mm

Hindwing length: 21–22 mm



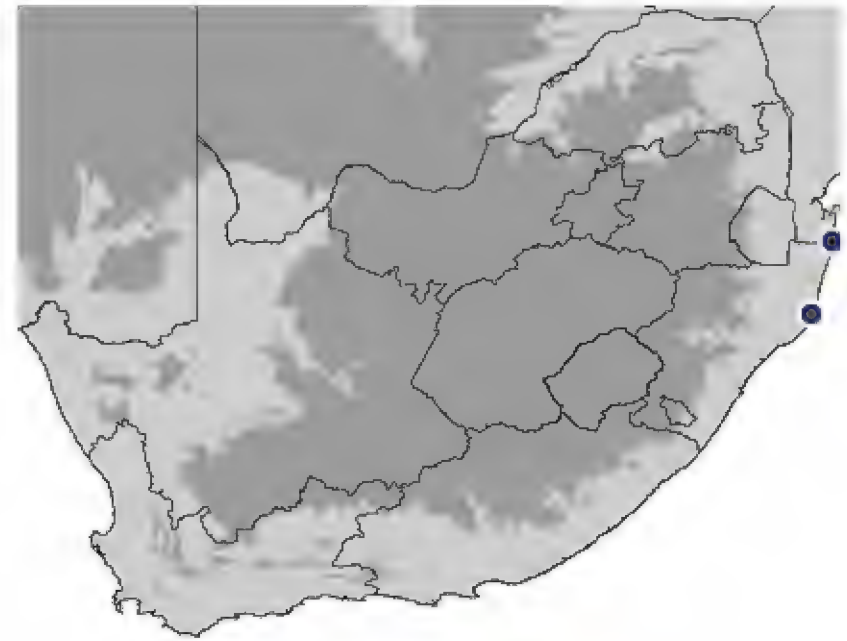


Coastal Pennant (Cora's Pennant)

Macrodiplax cora (Kaup in Brauer, 1867)

Appearance: The Coastal Pennant is medium sized, deep reddish brown with a bright red abdomen with a dark stripe running along its length. Face and top of head deep reddish brown with darker band across postclypeus. Eyes large, deep purplish above, reddish brown and grey below. Thorax deep reddish brown with dark brown marbling. Wings clear, except for small amber patch at base of hindwings. Pterostigmas 2.8 mm, reddish brown. Abdomen bright red with strongly contrasting black stripe of varying width, broken at each segmental joint, running along top, looks like many hourglasses stacked upon one another when viewed from above. Female similar in patterning, including stripe along abdomen and wing patches, but red is replaced by dull orange.

Field notes: The Coastal Pennant has only been recorded from the shores of northern KwaZulu-Natal. Its range extends across the Indian Ocean islands, Asia, Australasia and Pacific Ocean and it appears to be an occasional vagrant to South Africa. It inhabits marshland among coastal bush where it perches on twigs and makes frequent dashes out and returns to its perch. To date, it has been recorded as on the wing from December to April.

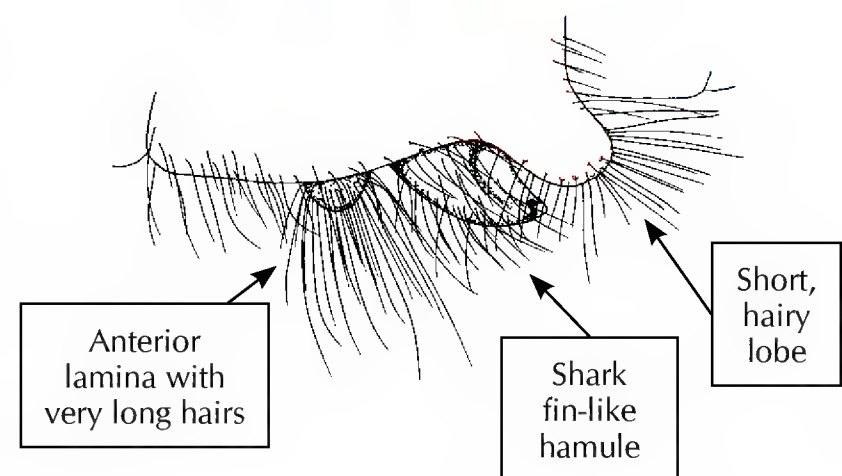


Threat

LC

DBI

4



- All reddish
- Hourglass striping all along abdomen
- Rare vagrant to northern KwaZulu-Natal

- A. Thorax deep reddish brown
B. Hourglass striping
C. Bright red abdomen

Body length: 42–43 mm

Hindwing length: 31–32 mm

CHECKLIST OF SOUTH AFRICAN DRAGONFLIES

Scientific name	Vernacular name	Alternate or older names
ZYGOPTERA	DAMSELFLIES	
CALOPTERYGIDAE	DEMOISELLES	
<i>Phaon iridipennis</i> (Burmeister, 1839)	Glistening Demoiselle	
CHLOROCYPHIDAE	JEWELS	
<i>Chlorocypha consueta</i> (Karsch, 1899)	Ruby Jewel	
<i>Platycypha caligata</i> (Sélys, 1853)	Dancing Jewel	Glade Jewel
<i>P. fitzsimonsi</i> (Pinhey, 1950)	Boulder Jewel	Fitzsimons' Jewel
SYNLESTIDAE	MALACHITES	
<i>Chlorolestes apricans</i> Wilmot, 1975	Amatola Malachite	Basking Malachite
<i>C. conspicuus</i> Hagen in Sélys, 1862	Conspicuous Malachite	
<i>C. draconicus</i> Balinsky, 1956	Drakensberg Malachite	
<i>C. elegans</i> Pinhey, 1950	Elegant Malachite	Elegant Sylph
<i>C. fasciatus</i> (Burmeister, 1839)	Mountain Malachite	Mountain Sylph
<i>C. tessellatus</i> (Burmeister, 1839)	Forest Malachite	Mosaic Sylph
<i>C. umbratus</i> Hagen in Sélys, 1862	White Malachite	Shade Sylph
<i>C. (Ecchlorolestes) nylephtha</i> (Barnard, 1937)	Queen Malachite	
<i>C. (E.) peringueyi</i> (Ris, 1921)	Rock Malachite	Marbled Malachite
LESTIDAE	SPREADWINGS	
<i>Lestes dissimulans</i> Fraser, 1955	Cryptic Spreadwing	
<i>L. ictericus</i> Gerstäcker, 1869	Tawny Spreadwing	
<i>L. pallidus</i> Rambur, 1842	Pallid Spreadwing	Pale Spreadwing
<i>L. plagiatus</i> (Burmeister, 1839)	Highland Spreadwing	Common Spreadwing
<i>L. tridens</i> McLachlan, 1895	Spotted Spreadwing	Grey-Spotted Spreadwing
<i>L. uncifer</i> Karsch, 1899	Sickle Spreadwing	
<i>L. virgatus</i> (Burmeister, 1839)	Smoky Spreadwing	Virginal Spreadwing
PLATYCNEMIDIDAE	FEATHERLEGS and THREADTAILS	
<i>Allocnemis leucosticta</i> Sélys, 1863	Goldtail	
<i>Elatoneura frenulata</i> (Hagen in Sélys, 1860)	Sooty Threadtail	
<i>E. glauca</i> (Sélys, 1860)	Common Threadtail	
<i>Mesocnemis singularis</i> Karsch, 1891	Savanna Riverjack	Riverjack, Savanna Stream-damsel

PLATYCNEMIDIDAE (cont.)		FEATHERLEGS and THREADTAILS
<i>Metacnemis valida</i> Hagen in Sélys, 1863	Blue Streamjack	Kubusi Stream-damsel, Kubusi Streamjack
<i>Spesbona angusta</i> (Sélys, 1863)	Spesbona	Ceres Pooljack, Ceres Stream-damsel, Ceres Streamjack
COENAGRIONIDAE		POND DAMSELS
<i>Aciagrion dondoense</i> Dijkstra, 2007	Opal Slim	
<i>A. gracile</i> (Sjöstedt, 1909)	Graceful Slim	Emerald-striped Slim
<i>Africallagma fractum</i> (Ris, 1921)	Slender Bluet	
<i>A. glaucum</i> (Burmeister, 1839)	Swamp Bluet	
<i>A. sapphirinum</i> (Pinhey, 1950)	Sapphire Bluet	
<i>A. sinuatum</i> (Ris, 1921)	Peak Bluet	Arid Bluet
<i>Agriocnemis exilis</i> Sélys, 1872	Little Wisp	Little Whisp
<i>A. falcifera</i> Pinhey, 1959	White-masked Wisp	White-masked Whisp
<i>A. gratiosa</i> Gerstäcker, 1891	Gracious Wisp	Gracious Whisp
<i>A. pinheyi</i> Balinsky, 1963	Pinhey's Wisp	Pinhey's Whisp
<i>A. ruberrima</i> Balinsky, 1961	Orange Wisp	Orange Whisp
<i>Azuragrion nigradorsum</i> (Sélys, 1876)	Sailing Bluet	Black-tailed Bluet
<i>Ceriagrion glabrum</i> (Burmeister, 1839)	Common Citril	
<i>C. suave</i> Ris, 1921	Suave Citril	
<i>Pseudagrion acaciae</i> Förster, 1906	Acacia Sprite	Green-naped Sprite
<i>P. assegaii</i> Pinhey, 1950	Assegai Sprite	Spearhead Sprite
<i>P. caffrum</i> (Burmeister, 1839)	Springwater Sprite	
<i>P. citricola</i> Barnard, 1937	Yellow-faced Sprite	
<i>P. coeleste</i> Longfield, 1947	Catshead Sprite	
<i>P. commoniae</i> (Förster, 1902)	Black Sprite	Mourning Sprite
<i>P. draconis</i> Barnard, 1937	Mountain Sprite	
<i>P. furcigerum</i> (Rambur, 1842)	Palmiet Sprite	Cape Sprite
<i>P. gamblesi</i> Pinhey, 1978	Great Sprite	Gambles' Sprite
<i>P. hageni</i> Karsch, 1893	Painted Sprite	Hagen's Sprite
<i>P. hamoni</i> Fraser, 1955	Swarthy Sprite	Drab Sprite, Hamon's Sprite
<i>P. inopinatum</i> Balinsky, 1971	Balinsky's Sprite	Badplaas Sprite
<i>P. kersteni</i> (Gerstäcker, 1869)	Powder-faced Sprite	Kersten's Sprite, Powder-striped Sprite
<i>P. makabusiense</i> Pinhey, 1950	Green-striped Sprite	Makabusi Sprite
<i>P. massaicum</i> Sjöstedt, 1909	Masai Sprite	Vermilion Sprite
<i>P. newtoni</i> Pinhey, 1962	Harlequin Sprite	Newton's Sprite
<i>P. salisburyense</i> Ris, 1921	Slate Sprite	Salisbury Sprite
<i>P. sjoestedti</i> Förster, 1906	Variable Sprite	Rufous Sprite, Sjoestedt's Sprite
<i>P. spernatum</i> Sélys, 1881	Upland Sprite	Natal Sprite, Powder Sprite
<i>P. sublacteum</i> (Karsch, 1893)	Cherry-eye Sprite	
<i>P. sudanicum</i> Le Roi, 1915	Blue-sided Sprite	Blue-spotted Sprite, Sudan Sprite
<i>P. vaalense</i> Chutter, 1962	Vaal Sprite	
<i>Ischnura senegalensis</i> (Rambur, 1842)	Tropical Bluetail	Common Bluetail, Marsh Bluetail
<i>Proischnura polychromatica</i> (Barnard, 1937)	Mauve Bluet	Polybluet, Cape Bluet
<i>P. rotundipennis</i> (Ris, 1921)	Round-winged Bluet	

ANISOPTERA		DRAGONFLIES	
AESHNIDAE		HAWKERS	
<i>Anaciaeschna triangulifera</i> McLachlan, 1896	Evening Hawker		
<i>Anax ephippiger</i> (Burmeister, 1839)	Vagrant Emperor		
<i>A. imperator</i> Leach, 1815	Blue Emperor		
<i>A. speratus</i> Hagen, 1867	Orange Emperor		
<i>A. tristis</i> Hagen, 1867	Black Emperor		
<i>Gynacantha manderica</i> Grünberg, 1902	Little Duskhawker		
<i>G. usambarica</i> Sjöstedt, 1909	Eastern Duskhawker	Usambara Duskhawker, Zulu Duskhawker	
<i>G. villosa</i> Grünberg, 1902	Brown Duskhawker		
<i>Pinheyschna subpupillata</i> (McLachlan, 1896)	Stream Hawker		
<i>Zosteraeschna minuscula</i> (McLachlan, 1896)	Friendly Hawker		
<i>Z. usambarica</i> (Förster 1906)	Forest Hawker	Usambara Hawker	
GOMPHIDAE		CLUBTAILS	
<i>Ceratogomphus pictus</i> Sélys, 1854	Common Thorntail		
<i>C. triceraticus</i> Balinsky, 1963	Cape Thorntail	Balinsky's Thorntail	
<i>Crenigomphus cornutus</i> Pinhey, 1956	Horned Talontail		
<i>C. hartmanni</i> (Förster, 1898)	Clubbed Talontail		
<i>Gomphidia quarrei</i> (Schouteden, 1934)	Southern Fingertail	Quarre's Fingertail, Quarre's Tiger	
<i>Ictinogomphus ferox</i> (Rambur, 1842)	Common Tigertail		
<i>Lestinogomphus angustus</i> Martin, 1911	Spined Fairytail		
<i>Neurogomphus zambeziensis</i> Cammaerts, 2004	Zambezi Siphontail		
<i>Notogomphus praetorius</i> (Sélys, 1878)	Yellowjack	Yellowjack Longleg	
<i>Onychogomphus supinus</i> Sélys, 1854	Lined Claspertail	Gorge Claspertail	
<i>Paragomphus cognatus</i> (Rambur, 1842)	Rock Hooktail	Boulder Hooktail	
<i>P. elpidius</i> (Ris, 1921)	Corkscrew Hooktail		
<i>P. genei</i> (Sélys, 1841)	Common Hooktail	Green Hooktail	
<i>P. magnus</i> Fraser, 1952	Great Hooktail		
<i>P. sabicus</i> (Pinhey, 1950)	Flapper Hooktail	Sabi Hooktail, Sabie Hooktail	
<i>Phyllogomphus selysi</i> Schouteden, 1933	Bold Leaftail		
CORDULIIDAE		EMERALDS	
<i>Hemicordulia africana</i> Dijkstra, 2007	African Emerald	Asian Cruiser	
<i>Phyllomacromia contumax</i> Sélys, 1879	Two-banded Cruiser		
<i>P. monoceros</i> (Förster, 1906)	Sable Cruiser	Black Cruiser, Unicorn Cruiser	
<i>P. picta</i> (Hagen in Sélys, 1871)	Darting Cruiser		
<i>Syncordulia gracilis</i> (Burmeister, 1839)	Yellow Presba	Yellow Cruiser	
<i>S. legator</i> Dijkstra, Samways & Simaika, 2007	Gilded Presba		
<i>S. serendipator</i> Dijkstra, Samways & Simaika, 2007	Rustic Presba		
<i>S. venator</i> (Barnard, 1933)	Mahogany Presba	Chestnut Cruiser	

LIBELLULIDAE	SKIMMERS	
<i>Acisoma inflatum</i> Sélys, 1882	Stout Pintail	
<i>A. variegatum</i> Kirby, 1898	Slender Pintail	
<i>Aethriamanta rezia</i> Kirby, 1889	Pygmy Basker	
<i>Brachythemis lacustris</i> (Kirby, 1889)	Red Groundling	
<i>B. leucosticta</i> (Burmeister, 1839)	Banded Groundling	
<i>Bradinopyga cornuta</i> Ris, 1911	Horned Rockdweller	Don-Dwala
<i>Chalcostephia flavifrons</i> Kirby, 1889	Inspector	
<i>Crocothemis divisa</i> Karsch, 1898	Rock Scarlet	Divisa Scarlet
<i>C. erythraea</i> (Brullé, 1832)	Broad Scarlet	
<i>C. sanguinolenta</i> (Burmeister, 1839)	Little Scarlet	
<i>Diplacodes lefebvrii</i> (Rambur, 1842)	Black Percher	
<i>D. luminans</i> (Karsch, 1893)	Barbet Percher	
<i>D. pumila</i> Dijkstra, 2006	Dwarf Percher	Little Percher
<i>Hemistigma albipunctum</i> (Rambur, 1842)	African Piedspot	Pied-spot
<i>Macrodiplax cora</i> (Kaup in Brauer, 1867)	Coastal Pennant	Coastal Glider, Cora's Pennant
<i>Nesciothemis farinosa</i> (Förster, 1898)	Eastern Blacktail	Black-tailed Skimmer
<i>Notiothemis jonesi</i> Ris, 1919	Eastern Forestwatcher	Forestwatcher, Jones' Forestwatcher
<i>Olpogastra lugubris</i> Karsch, 1895	Bottletail	Slender Bottletail
<i>Orthetrum abbotti</i> Calvert, 1892	Little Skimmer	Abbott's Skimmer
<i>Orthetrum brachiale</i> (Palisot de Beauvois, 1817)	Tough Skimmer	
<i>O. cafferum</i> (Burmeister, 1839)	Two-striped Skimmer	
<i>O. chrysostigma</i> (Burmeister, 1839)	Epaulet Skimmer	
<i>O. guineense</i> Ris, 1910	Guinea Skimmer	
<i>O. hintzi</i> Schmidt, 1951	Dark-shouldered Skimmer	Hintz's Skimmer
<i>O. icteromelas</i> Ris, 1910	Spectacled Skimmer	
<i>O. julia</i> Kirby, 1900	Julia Skimmer	
<i>O. machadoi</i> Longfield, 1955	Highland Skimmer	Machado's Skimmer
<i>O. monardi</i> Schmidt, 1951	Woodland Skimmer	
<i>O. robustum</i> Balinsky, 1965	Robust Skimmer	
<i>O. rubens</i> Barnard, 1937	Elusive Skimmer	Alto Rouge
<i>O. stemmale</i> (Burmeister, 1839)	Bold Skimmer	Strong Skimmer
<i>O. trinacria</i> (Sélys, 1841)	Long Skimmer	
<i>Palpopleura deceptor</i> (Calvert, 1899)	Deceptive Widow	
<i>P. jucunda</i> Rambur, 1842	Yellow-veined Widow	
<i>P. lucia</i> (Drury, 1773)	Lucia Widow	St Lucia Widow
<i>P. portia</i> (Drury, 1773)	Portia Widow	
<i>Pantala flavescens</i> (Fabricius, 1798)	Pantala or Wandering Glider	Globe Skimmer
<i>Parazyxomma flavicans</i> (Martin, 1908)	Banded Duskdarter	
<i>Rhyothemis semihyalina</i> (Desjardins, 1832)	Phantom Flutterer	
<i>Sympetrum fonscolombii</i> (Sélys, 1840)	Nomad	Red-veined Darter
<i>Tetrathemis polleni</i> (Sélys, 1869)	Black-splashed Elf	Black-splash
<i>Tholymis tillarga</i> (Fabricius, 1798)	Twister	
<i>Tramea basilaris</i> (Palisot de Beauvois, 1817)	Keyhole Glider	

LIBELLULIDAE (cont.)	SKIMMERS	
<i>T. limbata</i> (Desjardins, 1832)	Ferruginous Glider	Voyaging Glider
<i>Trithemis aconita</i> Lieftinck, 1969	Halfshade Dropwing	Monkshood Dropwing
<i>T. annulata</i> (Palisot de Beauvois, 1807)	Violet Dropwing	
<i>T. arteriosa</i> (Burmeister, 1839)	Red-veined Dropwing	
<i>T. donaldsoni</i> (Calvert, 1899)	Denim Dropwing	Donaldson’s Dropwing
<i>T. dorsalis</i> (Rambur, 1842)	Highland Dropwing	Dorsal Dropwing, Round-hook Dropwing
<i>T. furva</i> Karsch, 1899	Navy Dropwing	
<i>T. hecate</i> Ris, 1912	Silhouette Dropwing	Hecate Dropwing
<i>T. kirbyi</i> Sélys, 1891	Orange-winged Dropwing	Kirby’s Dropwing
<i>T. pluvialis</i> Förster, 1906	Russet Dropwing	Riffle-and-reed Dropwing, River Dropwing
<i>T. stictica</i> (Burmeister, 1839)	Jaunty Dropwing	
<i>T. weneri</i> Ris, 1912	Elegant Dropwing	Werner’s Dropwing
<i>Urothemis assignata</i> (Sélys, 1872)	Red Basker	
<i>U. edwardsii</i> (Sélys, 1849)	Blue Basker	
<i>U. luciana</i> Balinsky, 1961	St Lucia Basker	
<i>Zygonoidea fueleborni</i> Grünberg 1902	Southern Riverking	Robust Bottletail, Robust Riverking
<i>Zygonyx natalensis</i> (Martin, 1900)	Blue Cascader	Scuffed Cascader
<i>Z. torridus</i> (Kirby, 1889)	Ringed Cascader	
<i>Zygomma atlanticum</i> Sélys, 1889	Smoky Duskdarter	Fumose Duskdarter



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GLOSSARY

Words in bold are defined elsewhere in the Glossary.

A

abdomen: long and thin terminal section of the body.

Anisoptera: the group (suborder) of species that are all true dragonflies.

anteclypeus: forward-facing area of the **face** above the **labrum** and below the **postclypeus**; in most species it can only be seen when the face is viewed from the front, and not when viewed from above.

anterior lamina: protruding lower margin of abdominal segment 2 of true dragonflies (**Anisoptera**); forms a lip at anterior end of the **secondary genitalia**.

appendages: backward-pointing, spear- or hook-shaped projections at the tip of the **abdomen**; there are two pairs, an upper or superior pair (**superior appendages**) and a lower or inferior pair (**inferior appendages**).

auricles: small, lateral, leaf-like ears on the second abdominal segment of some dragonflies; they may assist in flight behaviour.

C

cerci: a pair of blade-like or leaf-like structures at the termination of the **abdomen** of true dragonflies (**Anisoptera**).

chin: casual term for the **labium**, the lip behind the **mandibles**, only visible from below.

clypeus: area of the face between **labrum** and **frons**, made up of the lower **anteclypeus** and the upper **postclypeus**.

collar: anterior, upturned lip of **prothorax**.

costa: main **wing** vein that is the leading edge of both the **forewings** and the **hindwings**.

costal region: the area along the leading edge of the **wings**.

crossveins: small veins bridging the gap between the main longitudinal veins that give the **wing** its net-like appearance.

E

endemic: with a specified and often restricted geographical range e.g. endemic to the southwestern Western Cape Province.

exuvia (plural: **exuviae**): empty larval shuck left behind on vegetation or rocks after the adult has emerged and flown away.

eyes: the main eyes are the large, round structures dominating the head; being hunters of smaller insects, dragonflies need good sight, hence the size of their eyes. These eyes are made up of hundreds of small facets, making the eyes compound. The head also bears three tiny, simple eyes (**ocelli**) on top, arranged in a triangle between the antennae, which possibly function as night/day receptors.

F

face: a casual term for the whole frontal area of the **head**.

femora: the upper, main and long part of the legs (thigh).

foliations: flattened, lateral, leaf-like extensions at the tip of the **abdomen** of some adult Clubtails (Gomphidae) and, to a lesser extent, females of some other species.

forehead: casual term for the front, top of the **head**; made up variously of part of **frons** and part of **vertex**.

forewing(s): first pair of **wings**.

frons: upward-facing area (in damselflies) or angular area (in dragonflies) at the front of the face above the **postclypeus** and in front of the **vertex** (top of **head**) and between lower part of the **eyes**.

frontal band: forward-facing part of the **frons** of damselflies, and which may be important in the identification of some species, e.g. Wisps (*Agriocnemis* species).

H

hamule: part of the secondary genitalia of true dragonflies (**Anisoptera**), on the ventral side of the front end of the abdomen, usually in the form of a protrusion with a hook.

head: the first of three sections (the other two being **thorax** and **abdomen**) bearing important sensory organs, especially the large **eyes** and the mouth.

hindwing(s): second pair of **wings**.

I

inferior appendages: lower, terminal **appendages** on segment 10 of male damselflies.

L

labium: lower lip, casually referred to as the chin, lying behind the **mandibles**, and only visible from below.

labrum: the conspicuous plate, or front ‘lip’, running across the lower region of the **face** when viewed from in front.

lip: the **labrum**; the bottom part of the **face** when viewed from the front.

M

mandibles: pair of pincer-like jaws.

N

neck: casual term for the **prothorax**.

nodus: the small kink more or less midway along the anterior, leading edge of the **wing**.

nose: the protruding front part of the face, made up mostly of the **frons**.

O

obelisking: in some perching dragonflies, the raising of the **abdomen** high in the air, sometimes to an almost vertical position, to keep cool by presenting minimum area to the sun’s rays while still maintaining a territorial position.

occiput: top, back of **head**: often diagnostic in damselflies as it bears the **postocular spots**.

ocelli: three simple eyes, arranged in a triangle, on the dorsal surface of the head.

Odonata: the insect order made up of the true dragonflies (**Anisoptera**) and the damselflies (**Zygoptera**); the term means ‘toothed’ referring to the strong **mandibles** of the adult insects.

ovipositor: egg-laying apparatus in **Zygoptera** and some **Anisoptera**.

P

peaks: pair of cone-shaped structures on the upper surface of the front of the top of the **head** (**vertex**) in some true dragonflies (**Anisoptera**); diagnostic in some Skimmers (*Orthetrum* species).

postclypeus: upward-facing area (top of **nose** in damselflies) or forward-facing area of the **face** above the **anteclypeus** and below the **frons**.

postocular spots: light-coloured spots on top of the **head** in some damselflies; diagnostic in Sprites (*Pseudagrion* species).

prothorax: small, first segment of **thorax** bearing first pair of legs but no **wings**, casually referred to as the **neck**.

pruinescence: waxy, whitish bloom on the body of many adult (especially male) dragonflies; in some species it may be over almost the entire body and often increases in intensity and extent with age so that some old individuals appear powdery.

pterostigma(s): pigmented cell near the tip and at the leading edge of all four **wings**; it is thicker and stronger than the surrounding **wing**, and influences movement of the **wing** during flight.

S

saddle: light or brightly coloured patch on the upper part of the base of the **abdomen**; diagnostic feature in some Hawkers (Aeshnidae). Also a term used more widely for a dorsal, saddle-shaped patch anywhere on the body.

secondary genitalia: accessory genitalia of male damselflies and dragonflies on segments 2 and 3 of the **abdomen**; important in the identification of many male dragonflies.

setae: fine ‘hairs’.

shoulder: upper, dorsal area of **thorax**.

smoky: when **wings** are yellowish or brownish, especially with increasing age.

spectacled: having the shape of spectacles or glasses; important diagnostic feature of the **frons** in Skimmers (*Orthetrum* species).

superior appendages: terminal, upper, appendages of the primary genitalia (**appendages**) on the last abdominal segment; important in the identification of many damselflies.

synthorax: bulk of the **thorax**, made up of the last two thoracic segments, and bearing both pairs of **wings** and the last two pairs of legs.

T

teneral: freshly-emerged, young adult that still has a soft body and, in males in particular, has not yet developed the characteristic colours of the mature adult; tenerals often move away from the water to mature, and teneral males are often very similar to females in colour patterning.

thorax: thick, middle section of the body consisting principally of large muscles for the **wings** and legs;

it is composed of a small, anterior **prothorax**, and a much larger **synthorax**.

thorax front: dorsal, flattish area of the **synthorax** between the neck and the **wing** bases.

V

vertex: frontal, top of **head**; casually referred to, at least in part, as the **forehead**.

W

waist: narrowing of the **abdomen** at segment 3 in some true dragonflies (**Anisoptera**).

wings: large structures enabling dispersal and prey capture in adults; there are two pairs, the first pair being the **forewings** and the second pair the **hindwings**.

Z

Zygoptera: the group (suborder) of species comprising the damselflies.



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Overall, freshwater ecosystems are the most threatened ecosystem type in the world. The scarce South African freshwaters are threatened by alien organisms, high volumes of water abstraction, and pollution. Yet some South African freshwaters are being restored to their former condition. It is important to monitor these systems and note whether they are declining or improving. One way to do this is to use the Dragonfly Biotic Index, which is based on dragonfly biogeography, their sensitivity to change, and the degree to which they are threatened. This index is sensitive and robust and is suitable for assessing and monitoring freshwaters across the country. This manual explains how to use and apply the Dragonfly Biotic Index, while also providing guidelines for species identification.

